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SEARCH REQUEST FORM

Scientific and Technical Information Center

Requester's Full Name: KHATOL SHAHNAN-SHAH Examiner #: 78526 Date: 7/20/01
Art Unit: 1645 Phone Number 30 8-8896 Serial Number: 09/6/0034
Mail Box and Bldg/Room Location: 8D-17 Results Format Preferred (circle): PAPER DISK E-MAIL
8E-12

If more than one search is submitted, please prioritize searches in order of need.

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Please provide a detailed statement of the search topic, and describe as specifically as possible the subject matter to be searched. Include the elected species or structures, keywords, synonyms, acronyms, and registry numbers, and combine with the concept or utility of the invention. Define any terms that may have a special meaning. Give examples or relevant citations, authors, etc, if known. Please attach a copy of the cover sheet, pertinent claims, and abstract.

Title of Invention: See attached Bib. Sheet

Inventors (please provide full names): See attached Sheet

Earliest Priority Filing Date: 1/13/98

***For Sequence Searches Only* Please include all pertinent information (parent, child, divisional, or issued patent numbers) along with the appropriate serial number.**

Please Search elected claims 1-10 and 35-38. attached claims + abstract.

Please Rush Ammended case

Point of Contact:
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Technical Info. Specialist
CM1 12C14 Tel: 306-4994

A.F. Smith, SPE
Art Unit 1645
7/23/01

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STAFF USE ONLY	Type of Search	Vendors and cost where applicable
Searcher: Beverly 2.4994	NA Sequence (#) _____	STN ✓
~~Searcher Phone #:~~ _____	AA Sequence (#) _____	Dialog _____
Searcher Location: _____	Structure (#) _____	Questel/Orbit _____
Date Searcher Picked Up: _____	Bibliographic _____	Dr.Link _____
Date Completed: 07-25-01	Litigation _____	Lexis/Nexis _____
Searcher Prep & Review Time: 12	Fulltext _____	Sequence Systems _____
Clerical Prep Time: _____	Patent Family _____	WWW/Internet _____
Online Time: 6	Other _____	Other (specify) _____

PTO-1590 (1-2000)

09/610034

(FILE 'CAPLUS' ENTERED AT 11:47:41 ON 25 JUL 2001)
L1 1231 SEA ABB=ON PLU=ON (MORAXELL? OR M OR BRANHAM? OR B)(3A)CATARRH?
L2 14 SEA ABB=ON PLU=ON L1 AND (LOS(S)(LIPOOLIGO? OR LIPO OLIGO?) OR LIPOOLIGOSACCHARID? OR LIPO(W)(OLIGOSACCHARID? OR OLIGO SACCHARID?) OR LIPOOLIGO SACCHARID?)

L2 ANSWER 1 OF 14 CAPLUS COPYRIGHT 2001 ACS
ACCESSION NUMBER: 2001:215844 CAPLUS
DOCUMENT NUMBER: 134:294257
TITLE: Functional characteristics of a protective monoclonal antibody against serotype A and C **lipooligosaccharides** from **Moraxella catarrhalis**
AUTHOR(S): Hu, Wei-Gang; Chen, Jing; McMichael, John C.; Gu, Xin-Xing
CORPORATE SOURCE: Laboratory of Immunology, National Institute on Deafness and Other Communication Disorders, Rockville, MD, 20850, USA
SOURCE: Infect. Immun. (2001), 69(3), 1358-1363
CODEN: INFIBR; ISSN: 0019-9567
PUBLISHER: American Society for Microbiology
DOCUMENT TYPE: Journal
LANGUAGE: English
AB A monoclonal antibody (MAb), designated MAb 8E7 (IgG3), specific for **Moraxella catarrhalis lipooligosaccharide** (**LOS**) was evaluated for its functional activity in vitro and in a mouse model of colonization. ELISA demonstrated that the MAb 8E7 could be prepd. to a high titer against LOS of the homologous strain 035E, and that it had bactericidal activity. MAb 8E7 reacted with **M. catarrhalis** serotype A and C LOSs but not serotype B LOS, as measured by ELISA and Western blotting. On the basis of published structures of LOSs, this suggests that the epitope recognized by MAb 8E7 is directed to a common sequence of either .alpha.-GlcNAc-(1.fwdarw.2)-.beta.-Glc-(1.fwdarw.at the branch substituting position 4 of the trisubstituted Glc residue or a terminal tetrasaccharide .alpha.-Gal-(1.fwdarw.4)-.beta.-Gal-(1.fwdarw.4)-.alpha.-Glc-(1.fwdarw.2)-.beta.-Glc-(1 .fwdarw. at the branch substituting position 6 of the trisubstituted Glc residue. In a whole-cell ELISA, MAb 8E7 reacted with 70% of the 30 wild-type strains and clin. isolates tested. Immuno-electron microscopy demonstrated that MAb 8E7 reacted with a cell surface-exposed epitope of LOS on strain 035E. MAb 8E7 inhibited the adherence of strain 035E to Chang conjunctival epithelial cells by 90%. Passive immunization with MAb 8E7 could significantly enhance the clearance of strain 035E from mouse lungs in an aerosol challenge mouse model. This enhanced bacterial clearance was inhibited when MAb 8E7 was absorbed by

M. catarrhalis serotype A LOS, indicating that the **M. catarrhalis** LOS-directed antibody may play a major role in the enhancement of **M. catarrhalis** clearance from lungs. These data suggest that MAb 8E7, which recognizes surface-exposed LOS of **M. catarrhalis** , is a protective antibody against **M. catarrhalis** .

REFERENCE COUNT: 36
REFERENCE(S):
(1) Ahmed, K; Microb Pathog 2000, V28, P203 CAPLUS
(2) Alfa, M; Microb Pathog 1997, V22, P39 CAPLUS
(3) Barenkamp, S; Infect Immun 1992, V60, P1302 CAPLUS
(6) DeMaria, T; Infect Immun 1997, V65, P4431 CAPLUS
(8) Edebrink, P; Carbohydr Res 1994, V257, P269 CAPLUS
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L2 ANSWER 2 OF 14 CAPLUS COPYRIGHT 2001 ACS
ACCESSION NUMBER: 2001:23521 CAPLUS
TITLE: Vaccines for **Moraxella catarrhalis**
AUTHOR(S): McMichael, J. C.
CORPORATE SOURCE: Wyeth-Lederle Vaccines, West Henrietta, NY, 14586-9728, USA
SOURCE: Vaccine (2000), 19(Suppl. 1), S101-S107
CODEN: VACCDE; ISSN: 0264-410X
PUBLISHER: Elsevier Science Ltd.
DOCUMENT TYPE: Journal
LANGUAGE: English

AB Vaccine development for **Moraxella catarrhalis** is in the antigen identification stage. **M. catarrhalis** does not appear to synthesize secreted antigens such as exotoxins, nor does it appear to possess a carbohydrate capsule. Modified forms of these antigens are usually good vaccine components. There is some interest in whole bacterial cells and membrane fractions, but the search has largely focused on purified outer surface antigens. All of the present antigens have been selected based on the response seen in animals, although the antibody response seen in people exposed to the bacterium provides some guidance. The antibody response provides information related to the cross-strain preservation of epitopes and whether they are surface exposed. Antigens that elicit antibodies that have complement dependent bactericidal capacity, opsonophagocytic activity or interfere with one of the antigen's known functions such as adhesion or nutrient acquisition are particularly valued. In addn. to examg. the antibody response, some antigens have been

evaluated in a murine pulmonary clearance model. Using these assays and model, several vaccine candidates have been identified. The antigens may be roughly classified by the function they serve the bacterium. One set appears to promote adhesion to host tissues and includes the hemagglutinins, ubiquitous surface protein A1 (UspA1), and possibly the CD protein. A second set is involved in nutrient acquisition. This set includes the lactoferrin binding protein A (LbpA) and lactoferrin binding protein B (LbpB), the transferrin binding protein A (TbpA) and transferrin binding protein B (TbpB), the CD and E porins, and the **Catarrhalis** outer membrane protein **B** (CopB). A third set is comprised of antigens involved in virulence and it includes **lipooligosaccharide** (**LOS**) and the ubiquitous surface protein A2 (UspA2). Antigens of unknown function, such as the 200K protein, may also be vaccine candidates. The antigens that are most suitable will be detd. in clin. studies that are only beginning now.

REFERENCE COUNT: 53

REFERENCE(S):
(1) Aebi, C; Infect Immun 1996, V64, P2024 CAPLUS
(2) Aebi, C; Infect Immun 1997, V65, P4367 CAPLUS
(3) Aebi, C; Infect Immun 1998, V66, P3113 CAPLUS
(4) Aebi, C; Infect Immun 1998, V66, P540 CAPLUS
(5) Ahmed, K; Microbiol Immunol 1991, V35, P361 CAPLUS
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L2 ANSWER 3 OF 14 CAPLUS COPYRIGHT 2001 ACS
ACCESSION NUMBER: 2000:603738 CAPLUS
DOCUMENT NUMBER: 133:308783
TITLE: **Lipooligosaccharide** Pk (Gal.alpha.1-4Gal.beta.1-4Glc) epitope of **Moraxella catarrhalis** is a factor in resistance to bactericidal activity mediated by normal human serum
AUTHOR(S): Zaleski, Anthony; Scheffler, N. Karoline; Densen, Peter; Lee, Frank K. N.; Campagnari, Anthony A.; Gibson, Bradford W.; Apicella, Michael A.
CORPORATE SOURCE: Department of Microbiology, The University of Iowa, Iowa City, IA, 52242, USA
SOURCE: Infect. Immun. (2000), 68(9), 5261-5268
CODEN: INFIBR; ISSN: 0019-9567
PUBLISHER: American Society for Microbiology
DOCUMENT TYPE: Journal
LANGUAGE: English
AB **Moraxella catarrhalis** is a respiratory pathogen

responsible for acute bacterial otitis media in children and exacerbation of chronic bronchitis in adults. **M. catarrhalis** strains are frequently resistant to the bactericidal activity of normal human serum. In order to det. if the **lipooligosaccharide** (**LOS**) of **M. catarrhalis** has a role in serum resistance, the UDP-glucose-4-epimerase (galE) gene was identified, cloned, and sequenced and a deletion/insertion mutation was introduced into **M. catarrhalis** strain 2951. GalE enzymic activity, measured in whole-cell lysates, was ablated in **M. catarrhalis** 2951 galE. Mass spectrometric anal. of LOS isolated with hot phenol-water confirmed that strain 2951 produced a type A LOS. These studies showed that the LOS from 2951 galE had lost two hexose residues due to the galE mutation and that the resultant LOS structure lacked the (Gal.alpha.1-4Gal.beta.1-4Glc) Pk epitope found on **M. catarrhalis** 2951. Wild-type **M. catarrhalis** 2951 is resistant to complement-mediated serum bactericidal activity. In contrast, a greater than 2-log10-unit redn. in CFU occurred after incubation of 2951 galE in either 50 or 25% pooled human serum (PNHS), and CFU in 10% PNHS decreased by about 1 log10 unit. These studies suggest that the Pk epitope of the LOS may be an important factor in the resistance of **M. catarrhalis** to the complement-mediated bactericidal effect of normal human serum.

REFERENCE COUNT: 58

REFERENCE(S):

(1) Aebi, C; Infect Immun 1998, V66, P3113 CAPLUS

(2) Alexeyev, M; BioTechniques 1995, V18, P52 CAPLUS

(3) Altschul, S; Nucleic Acids Res 1997, V25, P3389 CAPLUS

(5) Apicella, M; J Infect Dis 1986, V153, P520 CAPLUS

(6) Borovkov, A; BioTechniques 1997, V22, P812 CAPLUS

ALL CITATIONS AVAILABLE IN THE RE FORMAT

L2 ANSWER 4 OF 14 CAPLUS COPYRIGHT 2001 ACS

ACCESSION NUMBER: 2000:603699 CAPLUS

DOCUMENT NUMBER: 133:280265

TITLE: Enhancement of clearance of bacteria from murine lungs by immunization with detoxified **lipooligosaccharide** from **Moraxella catarrhalis** conjugated to proteins

AUTHOR(S): Hu, Wei-Gang; Chen, Jing; Battey, James F.; Gu, Xin-Xing

CORPORATE SOURCE: Laboratory of Immunology, National Institute on

Deafness and Other Communication Disorders, National Institutes of Health, Rockville, MD, 20850, USA
SOURCE: Infect. Immun. (2000), 68(9), 4980-4985
CODEN: INFIBR; ISSN: 0019-9567
PUBLISHER: American Society for Microbiology
DOCUMENT TYPE: Journal
LANGUAGE: English

AB **Moraxella catarrhalis** strain 25238 detoxified **lipooligosaccharide** (dLOS)-protein conjugates induced a significant rise of bactericidal anti-**LOS** antibodies in animals. This study reports the effect of active or passive immunization with the conjugates or their antiserum on pulmonary clearance of **M. catarrhalis** in an aerosol challenge mouse model. Mice were injected s.c. with dLOS-tetanus toxoid (dLOS-TT), dLOS-high-mol.-wt. proteins (dLOS-HMP) from nontypeable Haemophilus influenzae (NTHi), or nonconjugated materials in Ribi adjuvant and then challenged with **M. catarrhalis** strain 25238 or O35E or NTHi strain 12. Immunization with dLOS-TT or dLOS-HMP generated a significant rise of serum anti-LOS IgG and 68% and 35 to 41% redns. of bacteria in lungs compared with the control following challenge with homologous strain 25238 and heterologous strain O35E, resp. Serum anti-LOS antibody levels correlated with its bactericidal titers against **M. catarrhalis** and bacterial CFU in lungs. Addnl., immunization with dLOS-HMP generated a 54% redn. of NTHi strain 12 compared with the control. Passive immunization with a rabbit antiserum against dLOS-TT conferred a significant redn. of strain 25238 CFU in lungs in a dose- and time-dependent pattern compared with preimmune serum-treated mice. Kinetic examn. of lung tissue sections demonstrated that antiserum-treated mice initiated and offset inflammatory responses more rapidly than preimmune serum-treated mice. These data indicate that LOS antibodies (whether active or passive) play a major role in the enhancement of pulmonary clearance of different test strains of **M. catarrhalis** in mice. In addn., dLOS-HMP is a potential candidate for a bivalent vaccine against **M. catarrhalis** and NTHi infections.

REFERENCE COUNT: 45
REFERENCE(S):
(1) Aderem, A; Annu Rev Immunol 1999, V17, P593 CAPLUS
(3) Barenkamp, S; Infect Immun 1992, V60, P1302 CAPLUS
(5) Barington, T; Infect Immun 1994, V62, P9 CAPLUS
(9) Chen, D; Infect Immun 1996, V64, P1900 CAPLUS
(12) Doern, G; Antimicrob Agents Chemother 1996,

V40, P2884 CAPLUS
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L2 ANSWER 5 OF 14 CAPLUS COPYRIGHT 2001 ACS
ACCESSION NUMBER: 2000:327769 CAPLUS
TITLE: Strategies for structural determination of **lipo-oligosaccharides** using mass spectrometry.
AUTHOR(S): Gaucher, Sara P.; Leary, Julie A.
CORPORATE SOURCE: Department of Chemistry, University of California, Berkeley, CA, 94720, USA
SOURCE: Book of Abstracts, 219th ACS National Meeting, San Francisco, CA, March 26-30, 2000 (2000), CARB-092. American Chemical Society: Washington, D. C.
CODEN: 69CLAC
DOCUMENT TYPE: Conference; Meeting Abstract
LANGUAGE: English
AB **Lipooligosaccharides** embedded in the outer membrane of many bacteria mediate the initial stages of infection in the host. Therefore, structural detn. of these antigens is necessary as a first step in developing glycoconjugate vaccines. Sample availability is extremely limited in many cases and these oligosaccharides are quite heterogeneous, making the application of MS techniques particularly relevant. Here we present the application of Electrospray Ionization (ESI) and mass anal. using a Quadrupole Ion Trap (QIT) and Fourier Transform Ion Cyclotron Resonance (FT-ICR) to investigate **lipooligosaccharides** from the upper respiratory pathogens Haemophilus influenzae and **Moraxella catarrhalis**. Multiple stages of mass spectrometry (MSn) provide information on monosaccharide compn., sequence, and linkage using as little as 2 nmol of material. In addn., structures which display a great deal of microheterogeneity can also be examd. Because these structures are resolved by m/z they can be sepd. from one another in the gas phase and examd. individually by MSn.

L2 ANSWER 6 OF 14 CAPLUS COPYRIGHT 2001 ACS
ACCESSION NUMBER: 1999:464181 CAPLUS
DOCUMENT NUMBER: 131:86860
TITLE: **Lipooligosaccharide**-based vaccine for prevention of **Moraxella** (**Branhamella**) **catarrhalis** infections in mammals
INVENTOR(S): Gu, Xin-Xing; Robbins, John B.
PATENT ASSIGNEE(S): The Government of the United States of America, Department of Health and Hum, USA
SOURCE: PCT Int. Appl., 60 pp.

CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9936086	A1	19990722	WO 1999-US590	19990112
W: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
RW: GH, GM, KE, LS, MW, SD, SZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
AU 9922212	A1	19990802	AU 1999-22212	19990112
BR 9906902	A	20001017	BR 1999-6902	19990112
EP 1047447	A1	20001102	EP 1999-902170	19990112
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI				

PRIORITY APPLN. INFO.: US 1998-71483 P 19980113
WO 1999-US590 W 19990112

AB A conjugate vaccine for **Moraxella catarrhalis** comprising isolated **lipooligosaccharide** from which esterified fatty acids have been removed, to produce a detoxified **lipooligosaccharide** (dLOS), or from which lipid A has been removed, to produce a detoxified oligosaccharide (OS), which is linked to an immunogenic carrier. The immunogenic carrier is selected from the group consisting of UspA or CD derived from **M. catarrhalis**, tetanus toxoid, HMP derived from Haemophilus influenza, diphtheria toxoid, detoxified P. aeruginosa toxin A, cholera toxin, pertussis toxin, hepatitis B surface or core antigen, rotavirus VP 7 protein, CRM, CRM197, CRM3201 and respiratory syncytial virus F and G protein. The vaccine is useful for preventing otitis media and respiratory infections caused by **M. catarrhalis** in mammals, including humans.

REFERENCE COUNT: 7
REFERENCE(S):
(1) Edebrink, P; CARBOHYDR RES 1995, V266(2), P237 CAPLUS
(2) Gibson, B; WO 9853851 A 1998 CAPLUS
(3) Gu, X; INFECTION AND IMMUNITY 1993, V61(5), P1873 CAPLUS
(4) Gu, X; INFECTION AND IMMUNITY 1996, V64(10), P4047 CAPLUS
(5) Gu, X; INFECTION AND IMMUNITY 1998, V66(5),

P1891 CAPLUS
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L2 ANSWER 7 OF 14 CAPLUS COPYRIGHT 2001 ACS
ACCESSION NUMBER: 1998:800024 CAPLUS
DOCUMENT NUMBER: 130:51336
TITLE: Laft mutants of pathogenic gram-negative bacteria
INVENTOR(S): Apicella, Michael A.; Gibson, Bradford W.; Nichols, Wade A.
PATENT ASSIGNEE(S): University of Iowa Research Foundation, USA; University of California
SOURCE: PCT Int. Appl., 31 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9853851	A1	19981203	WO 1998-US10881	19980528
W: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, GM, GW, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
RW: GH, GM, KE, LS, MW, SD, SZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG				
AU 9877010	A1	19981230	AU 1998-77010	19980528

PRIORITY APPLN. INFO.: US 1997-47791 19970528
WO 1998-US10881 19980528

AB A method is provided for identifying, isolating, and producing **lipooligosaccharide** (**LOS**) mutants of gram-neg. bacterial pathogens. The method comprises mutating the laft gene of a gram-neg. bacterial pathogen so that there is a lack of a functional Lipid A fatty acid transferase protein. The resulting LOS mutants lack one or more secondary acyl chains as compared to the LOS contained in the wild type gram-neg. bacterial pathogen. The LOS isolated from the laft mutants displays substantially reduced toxicity as compared to that of the wild type strain. Also, the present invention provides methods for using a vaccine formulation contg. the laft mutants, the endotoxin isolated therefrom, or the endotoxin isolated therefrom which is then conjugated to a carrier protein, to immunize an individual against infections caused by gram-neg. bacterial pathogens by administering

a prophylactically effective amt. of the vaccine formulation.

REFERENCE COUNT: 6

REFERENCE(S):
(1) Clementz; J Biol Chem 1997, V272(16), P10353 CAPLUS
(2) Jones; Infect Immun 1997, V65(11), P4778 CAPLUS
(3) Lee; J Biol Chem 1995, V270(45), P27151 CAPLUS
(4) Somerville; J Clin Invest 1996, V97(2), P359 CAPLUS
(5) Sprouse; US 5641492 A 1997 CAPLUS
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L2 ANSWER 8 OF 14 CAPLUS COPYRIGHT 2001 ACS

ACCESSION NUMBER: 1998:296912 CAPLUS

DOCUMENT NUMBER: 129:53186

TITLE: Synthesis and characterization of **lipooligosaccharide**-based conjugates as vaccine candidates for **Moraxella** (**Branhamella**) **catarrhalis**

AUTHOR(S): Gu, Xin-Xing; Chen, Jing; Barenkamp, Stephen J.; Robbins, John B.; Tsai, Chao-Ming; Lim, David J.; Battey, James

CORPORATE SOURCE: Laboratory of Immunology, National Institute on Deafness and Other Communication Disorders, Rockville, MD, 20850, USA

SOURCE: Infect. Immun. (1998), 66(5), 1891-1897
CODEN: INFIBR; ISSN: 0019-9567

PUBLISHER: American Society for Microbiology

DOCUMENT TYPE: Journal

LANGUAGE: English

AB **Moraxella** (**Branhamella**) **catarrhalis** is an important cause of otitis media and sinusitis in children and of lower respiratory tract infections in adults. **Lipooligosaccharide** (**LOS**) is a major surface antigen of the bacterium and elicits bactericidal antibodies. Treatment of the LOS from strain ATCC 25238 with anhyd. hydrazine reduced its toxicity 20,000-fold, as assayed in the Limulus amebocyte lysate (LAL) test. The detoxified LOS (dLOS) was coupled to tetanus toxoid (TT) or high-mol.-wt. proteins (HMP) from nontypeable Haemophilus influenzae through a linker of adipic acid dihydrazide to form dLOS-TT or dLOS-HMP. The molar ratios of dLOS to TT and HMP conjugates were 19:1 and 31:1, resp. The antigenicity of the two conjugates was similar to that of the LOS, as detd. by double immunodiffusion. S.c. or i.m. injection of both conjugates elicited a 50- to 100-fold rise in the geometric mean of IgG to the homologous LOS in mice after three injections and a 350- to 700-fold rise of anti-LOS IgG in rabbits after two injections. The

immunogenicity of the conjugate was enhanced by formulation with monophosphoryl lipid A plus trehalose dimycolate. In rabbits, conjugate-induced antisera had complement-mediated bactericidal activity against the homologous strain and heterologous strains of **M. catarrhalis**. These results indicate that a detoxified LOS-protein conjugate is a candidate for immunization against **M. catarrhalis** diseases.

L2 ANSWER 9 OF 14 CAPLUS COPYRIGHT 2001 ACS
ACCESSION NUMBER: 1996:618939 CAPLUS
DOCUMENT NUMBER: 125:329176
TITLE: Synthesis of Oligosaccharide Structures from the Lipopolysaccharide of **Moraxella catarrhalis**
AUTHOR(S): Ekeloef, Kerstin; Oscarson, Stefan
CORPORATE SOURCE: Arrhenius Laboratory, Stockholm University, Stockholm, S-106 91, Swed.
SOURCE: J. Org. Chem. (1996), 61(22), 7711-7718
CODEN: JOCEAH; ISSN: 0022-3263
DOCUMENT TYPE: Journal
LANGUAGE: English
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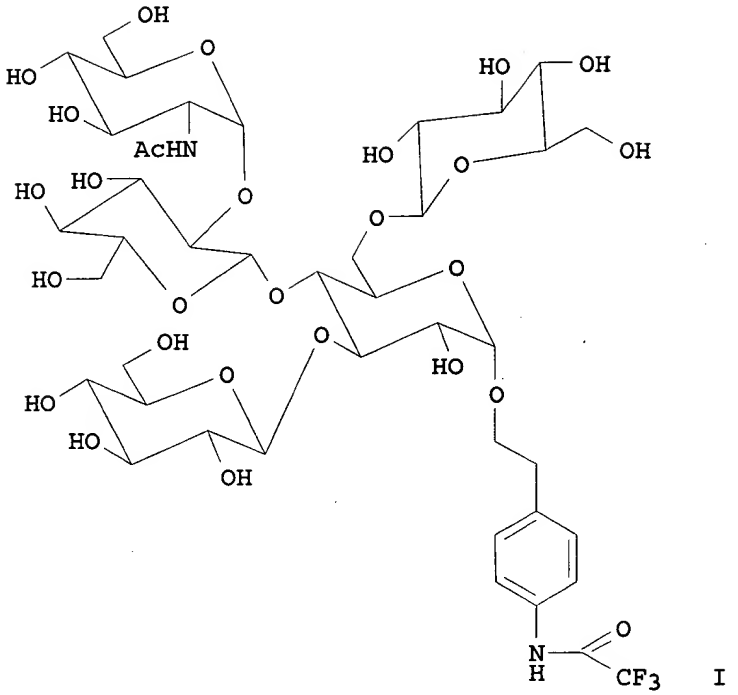


I

AB The synthesis of the oligosaccharide I was described. The synthesis of the octasaccharide [p-(trifluoroacetamido)phenyl]ethyl 4-O-[2-O-(2-acetamido-2-deoxy-.alpha.-D-glucopyranosyl)-.beta.-D-glucopyranosyl]-3-O-.beta.-D-glucopyranosyl-6-O-[2-O-[4-O-(4-O-.alpha.-D-galactopyranosyl-.beta.-D-galactopyranosyl)-.alpha.-D-glucopyranosyl]-.beta.-D-glucopyranosyl]-.alpha.-D-glucopyranoside, representing the outer part of the **lipooligosaccharide** from **Moraxella catarrhalis** serotype A, was described, together with a hepta-, a hexa-, and a pentasaccaride, composing parts thereof with shorter oligosaccharide chains substituted in the 6-position of the central 3,4,6-branched glucose moiety. The versatility of the use of thioglycosides in oligosaccharide synthesis is shown, since throughout the synthesis thioglycosides are used as glycosyl donor precursors, either directly in dimethyl(methylthio)sulfonium triflate (DMTST)-promoted coupling reactions or after conversion to the corresponding glycosyl bromide in silver triflate-promoted couplings. The effects of different protecting groups, anomeric leaving groups, and solvents used in the various coupling reactions are often substantial, which necessitates the use of easily convertible intermediates.

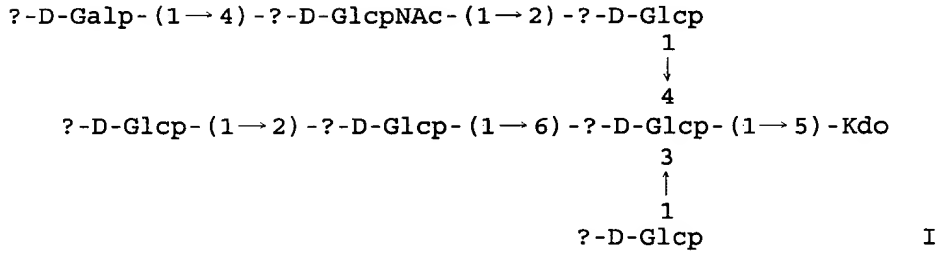
L2 ANSWER 10 OF 14 CAPLUS COPYRIGHT 2001 ACS

ACCESSION NUMBER: 1996:60653 CAPLUS
DOCUMENT NUMBER: 124:169948
TITLE: Separation and characterization of O-deacylated **lipooligosaccharides** and glycans derived from **Moraxella catarrhalis** using capillary electrophoresis-electrospray mass spectrometry and tandem mass spectrometry
AUTHOR(S): Kelly, J.; Masoud, H.; Perry, M. B.; Richards, J. C.; Thibault, P.
CORPORATE SOURCE: Dep. Chem., Dalhousie Univ., Halifax, NS, B3H 4J3, Can.
SOURCE: Anal. Biochem. (1996), 233(1), 15-30
CODEN: ANBCA2; ISSN: 0003-2697
DOCUMENT TYPE: Journal
LANGUAGE: English

AB Electrophoretic methods have been developed for the anal. of complex carbohydrates derived from **lipooligosaccharides** (**LOS**) of **Moraxella catarrhalis** using capillary electrophoresis coupled to electrospray mass spectrometry (CE-ESMS). Sepn. of **lipooligosaccharides** (**LOS**) arising from mild hydrazinolysis of the intact lipopolysaccharides (LPS) was achieved using aq. ammonium formate, and enabled identification of sites of heterogeneity (phosphates, phosphoethanolamine, and pendant acyl groups) on either the lipid A or the core oligosaccharide. More complex mixts. of carbohydrates obtained from the complete deacylation and dephosphorylation of LOS were amenable to electrophoretic conditions using both anionic and cationic sepn. In particular, electrophoretic conditions were developed which permitted resoln. of closely related oligosaccharides according to the no. of carbohydrate residues appended to the core structure. Structural characterization of carbohydrates and LOS released from the hydrazinolysis and acid hydrolysis treatment of the intact LPS was achieved using tandem mass spectrometry (MS-MS) for samples introduced by direct flow injection. Taken together, the combination of CE-ESI-MS and MS-MS analyses provided valuable information on the heterogeneity of the LOS population in which a significant level of variability was found mostly in the lipid A portion.

L2 ANSWER 11 OF 14 CAPLUS COPYRIGHT 2001 ACS
ACCESSION NUMBER: 1995:320431 CAPLUS
DOCUMENT NUMBER: 122:240278
TITLE: Structural studies of the O-antigen oligosaccharides from two strains of **Moraxella catarrhalis** serotype C
AUTHOR(S): Edebrink, Per; Jansson, Per-Erik; Mahbubur Rahman, M.; Widmalm, Goeran; Holme, Tord;

Rahman, Motiur
CORPORATE SOURCE: Department of Organic Chemistry, Arrhenius Laboratory, Stockholm University, Stockholm, S-106 91, Swed.
SOURCE: Carbohydr. Res. (1995), 266(2), 237-61
CODEN: CRBRAT; ISSN: 0008-6215
DOCUMENT TYPE: Journal
LANGUAGE: English
GI



I

AB The oligosaccharide parts from **Moraxella** (**Branhamella**) **catarrhalis** serotype C **lipooligosaccharides** were isolated by mild acid hydrolysis followed by gel permeation chromatog. Four different oligosaccharides, e.g. I, could be identified from strain RS26 and two from strain RS10. The structures of the O-oligosaccharides were established by methylation analyses, mass spectrometry, and NMR spectroscopy. It is concluded that the oligosaccharide O-antigens from RS26 are a mixt. of octa-, deca-, and undeca-saccharides, and most likely a heptasaccharide. Strain RS10 contains the deca- and the undeca-saccharide only. Methylation anal. of the intact **lipooligosaccharides** showed that two KDO residues were present, one terminal and one 4,5-substituted residue. It also showed that they consisted of a lipid A portion with 6-substituted glucosamine residues.

L2 ANSWER 12 OF 14 CAPLUS COPYRIGHT 2001 ACS
ACCESSION NUMBER: 1995:260096 CAPLUS
DOCUMENT NUMBER: 122:38807
TITLE: **lipooligosaccharide**-depleted antigenic outer membrane proteins of gram-negative cocci
INVENTOR(S): Zlotnick, Gary W.
PATENT ASSIGNEE(S): American Cyanamid Co., USA
SOURCE: Eur. Pat. Appl., 18 pp.
CODEN: EPXXDW
DOCUMENT TYPE: Patent

LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 624376	A1	19941117	EP 1994-106827	19940502
EP 624376	B1	20000315		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LI, LU, NL, PT, SE				
AT 190502	E	20000415	AT 1994-106827	19940502
ES 2145072	T3	20000701	ES 1994-106827	19940502
CA 2123355	AA	19941114	CA 1994-2123355	19940511
JP 08019396	A2	19960123	JP 1994-122032	19940512

PRIORITY APPLN. INFO.: US 1993-61581 A 19930513

AB A method for removing toxic **lipooligosaccharide** (**LOS**) from outer membranes of gram-neg. cocci, such as Neisseria meningitidis, is presented. Total membranes of the coccus are extd. with PEG to produce outer membranes depleted of inner membranes; the outer membranes are then extd. with a zwitterionic betaine detergent to remove LOS. The LOS-depleted outer membranes are able to elicit bactericidal antibodies against homologous strains of bacteria, and are useful in vaccines.

L2 ANSWER 13 OF 14 CAPLUS COPYRIGHT 2001 ACS
ACCESSION NUMBER: 1992:527885 CAPLUS
DOCUMENT NUMBER: 117:127885
TITLE: Further antigenic similarities of Neisseria gonorrhoeae **lipooligosaccharides** and human glycosphingolipids
AUTHOR(S): Mandrell, Robert E.
CORPORATE SOURCE: Cent. Immunochem., Veterans Adm. Med. Cent., San Francisco, CA, 94121, USA
SOURCE: Infect. Immun. (1992), 60(7), 3017-20
CODEN: INFIBR; ISSN: 0019-9567
DOCUMENT TYPE: Journal
LANGUAGE: English

AB Anticarbohydrate monoclonal antibodies were tested for their ability to bind to various strains of Neisseria. A monoclonal antibody that binds to the ganglio-series glycosphingolipid, ganglio-N-triaosylceramide, also bound to strains of N. gonorrhoeae but not to other species of Neisseria. An antibody specific for the globo-series glycosphingolipid, globotriaosylceramide, also bound to strains of N. gonorrhoeae, N. meningitidis, N. lactamica, and **Branhamella catarrhalis** but not to any other strains of nonpathogenic Neisseria.

L2 ANSWER 14 OF 14 CAPLUS COPYRIGHT 2001 ACS

L3 ANSWER 11 OF 11 MEDLIN[redacted] DUPLICAT[redacted]
ACCESSION NUMBER: 1998234010 MEDLINE
DOCUMENT NUMBER: 98234010 PubMed ID: 9573066
TITLE: Synthesis and characterization of lipooligosaccharide-based conjugates as vaccine candidates for Moraxella (Branhamella) catarrhalis.
AUTHOR: Gu X X; Chen J; Barenkamp S J; Robbins J B; Tsai C M; Lim D J; Battey J
CORPORATE SOURCE: Laboratory of Immunology, National Institute on Deafness and Other Communication Disorders, Rockville, Maryland 20850, USA.. xgu@pop.nidcd.nih.gov
SOURCE: INFECTION AND IMMUNITY, (1998 May) 66 (5) 1891-7. Journal code: 0246127. ISSN: 0019-9567.
PUB. COUNTRY: United States
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 199805
ENTRY DATE: Entered STN: 19980520
Last Updated on STN: 19980520
Entered Medline: 19980514

AB Moraxella (Branhamella) catarrhalis is an important cause of otitis media and sinusitis in children and of lower respiratory tract infections in adults. Lipooligosaccharide (LOS) is a major surface antigen of the bacterium and elicits bactericidal antibodies. Treatment of the LOS from strain ATCC 25238 with anhydrous hydrazine reduced its toxicity 20,000-fold, as assayed in the Limulus amebocyte lysate (LAL) test. The detoxified LOS (dLOS) was coupled to tetanus toxoid (TT) or high-molecular-weight proteins (HMP) from nontypeable Haemophilus influenzae through a linker of adipic acid dihydrazide to form dLOS-TT or dLOS-HMP. The molar ratios of dLOS to TT and HMP conjugates were 19:1 and 31:1, respectively. The antigenicity of the two conjugates was similar to that of the LOS, as determined by double immunodiffusion. Subcutaneous or intramuscular injection of both conjugates elicited a 50- to 100-fold rise in the geometric mean of immunoglobulin G (IgG) to the homologous LOS in mice after three injections and a 350- to 700-fold rise of anti-LOS IgG in rabbits after two injections. The immunogenicity of the conjugate was enhanced by formulation with monophosphoryl lipid A plus trehalose dimycolate. In rabbits, conjugate-induced antisera had complement-mediated bactericidal activity against the homologous strain and heterologous strains of M. catarrhalis. These results indicate that a **detoxified** LOS-protein conjugate is a candidate for immunization against M. **catarrhalis** diseases.

ACCESSION NUMBER: 1991:40563 CAPLUS
DOCUMENT NUMBER: 114:40563
TITLE: **Lipooligosaccharide** epitopes shared among gram-negative non-enteric mucosal pathogens
AUTHOR(S): Campagnari, Anthony A.; Spinola, Stanley M.; Lesse, Alan J.; Kwaik, Yousef Abu; Mandrell, Robert E.; Apicella, Michael A.
CORPORATE SOURCE: Sch. Med., State Univ. New York, Buffalo, NY, USA
SOURCE: Microb. Pathog. (1990), 8(5), 353-62
CODEN: MIPAEV; ISSN: 0882-4010
DOCUMENT TYPE: Journal
LANGUAGE: English

AB The non-enteric Gram-neg. human pathogens, **Branhamella catarrhalis**, Haemophilus ducreyi, H. influenzae, Neisseria gonorrhoeae, and N. meningitidis, do not have repeating O-antigens as part of their principal surface glycolipid, the **lipooligosaccharide** (**LOS**). Because they have similar LOS structures, the authors studied the conservation of LOS oligosaccharide epitopes among these organisms. Twenty-one monoclonal antibodies (mAbs) generated by immunizing mice with H. influenzae, N. gonorrhoeae, and N. meningitidis were studied for cross reactivity. Five mAbs generated against non-typable H. influenzae were the only strain-specific antibodies. Ten mAbs reacted to LOS epitope(s) common to a genus or species, and 6 mAbs bound to epitope(s) on the LOS of strains from different genera. Some cross reactive mAbs bound to LOS bands of similar mol. wts., while others bound to bands of varying mol. wts. MAb 3F11, whose epitope mimics a human blood-group antigen, bound to a 4.8 kDa LOS band in N. gonorrhoeae and H. ducreyi, 2 pathogens that infect genital epithelium. MAb 3D9, whose epitope consists of 2-keto-3-deoxyoctulosonic acid (KDO), reacted with different LOS bands in N. gonorrhoeae, H. influenzae, and some R mutants of S. minnesota. A 14 kb restriction fragment contg. **lipooligosaccharide** synthesis genes responsible for the assembly of the 3D9 epitope in H. influenzae hybridized to all H. influenzae strains tested but did not hybridize to gonococcal and S. minnesota strains that expressed this epitope. Thus, conserved LOS epitope(s) exist among different species and genera of non-enteric human pathogens and different genetic mechanisms may have evolved in these pathogens to assemble some of these conserved epitopes.

(FILE 'CAPLUS' ENTERED AT 11:47:41 ON 25 JUL 2001)
L3 14 SEA ABB=ON PLU=ON CATARRHAL? AND (LOS(S)(LIPOOLIGO? OR LIPO OLIGO?) OR LIPOOLIGOSACCHARID? OR LIPO(W)(OLIGOSACCHARID? OR OLIGO SACCHARID?) OR LIPOOLIGO SACCHARID?)
L4 0 SEA ABB=ON PLU=ON L3 NOT L2

Searcher : Shears 308-4994

(FILE 'MEDLINE, BIOSIS, EMBASE, WPIDS, CONFSCI, SCISEARCH, JICST-EPLUS, JAPIO' ENTERED AT 11:52:27 ON 25 JUL 2001)
L5 76 S L3
L6 35 DUP REM L5 (41 DUPLICATES REMOVED)

L6 ANSWER 1 OF 35 MEDLINE DUPLICATE 1
ACCESSION NUMBER: 2001285352 MEDLINE
DOCUMENT NUMBER: 21116943 PubMed ID: 11179299
TITLE: Functional characteristics of a protective monoclonal antibody against serotype A and C **lipooligosaccharides** from Moraxella **catarrhalis**.
AUTHOR: Hu W G; Chen J; McMichael J C; Gu X X
CORPORATE SOURCE: Laboratory of Immunology, National Institute on Deafness and Other Communication Disorders, Rockville, Maryland 20850, USA.
SOURCE: INFECTION AND IMMUNITY, (2001 Mar) 69 (3) 1358-63. Journal code: GO7; 0246127. ISSN: 0019-9567.
PUB. COUNTRY: United States
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 200105
ENTRY DATE: Entered STN: 20010529
Last Updated on STN: 20010529
Entered Medline: 20010524

AB A monoclonal antibody (MAb), designated MAb 8E7 (immunoglobulin G3), specific for Moraxella **catarrhalis** **lipooligosaccharide** (**LOS**) was evaluated for its functional activity in vitro and in a mouse model of colonization. Enzyme-linked immunosorbent assay (ELISA) demonstrated that the MAb 8E7 could be prepared to a high titer against **LOS** of the homologous strain 035E, and that it had bactericidal activity. MAb 8E7 reacted with M. **catarrhalis** serotype A and C LOSs but not serotype B **LOS**, as measured by ELISA and Western blotting. On the basis of published structures of LOSs, this suggests that the epitope recognized by MAb 8E7 is directed to a common sequence of either alpha-GlcNAc-(1-->2)-beta-Glc-(1--> at the branch substituting position 4 of the trisubstituted Glc residue or a terminal tetrasaccharide alpha-Gal-(1-->4)-beta-Gal-(1-->4)-alpha-Glc-(1-->2)-beta-Glc-(1--> at the branch substituting position 6 of the trisubstituted Glc residue. In a whole-cell ELISA, MAb 8E7 reacted with 70% of the 30 wild-type strains and clinical isolates tested. Immuno-electron microscopy demonstrated that MAb 8E7 reacted with a cell surface-exposed epitope of **LOS** on strain O35E. MAb 8E7 inhibited the adherence of strain O35E to Chang conjunctival epithelial cells by 90%. Passive immunization with MAb 8E7 could

significantly enhance the clearance of strain O35E from mouse lungs in an aerosol challenge mouse model. This enhanced bacterial clearance was inhibited when MAb 8E7 was absorbed by M. **catarrhalis** serotype A **LOS**, indicating that the M. **catarrhalis** **LOS**-directed antibody may play a major role in the enhancement of M. **catarrhalis** clearance from lungs. These data suggest that MAb 8E7, which recognizes surface-exposed **LOS** of M. **catarrhalis**, is a protective antibody against M. **catarrhalis**.

L6 ANSWER 2 OF 35 EMBASE COPYRIGHT 2001 ELSEVIER SCI. B.V.
ACCESSION NUMBER: 2001231775 EMBASE
TITLE: Molecular mimicry of host structures by **lipooligosaccharides** of Neisseria meningitidis: Characterization of sialylated and nonsialylated lacto-N-neotetraose (Gal.beta.1-4GlcNac.beta.1-3Gal.beta.1-4Glc) structures in **lipooligosaccharides** using monoclonal antibodies and specific lectins.
AUTHOR: Tsai C.-M.
CORPORATE SOURCE: C.-M. Tsai, Division of Bacterial Products, Ctr. for Biologics Evaluation/Res., FDA, Bethesda, MD 20892, United States
SOURCE: Advances in Experimental Medicine and Biology, (2001) 491/- (525-542).
Refs: 79
ISSN: 0065-2598 CODEN: AEMBAP
COUNTRY: United States
DOCUMENT TYPE: Journal; Conference Article
FILE SEGMENT: 004 Microbiology
005 General Pathology and Pathological Anatomy
026 Immunology, Serology and Transplantation
LANGUAGE: English
SUMMARY LANGUAGE: English
AB Neisseria meningitidis **lipooligosaccharides** (LOSs) are classified into 12 immunotypes. Most LOSs are heterogeneous in having a few components by SDS-PAGE analysis that differ antigenically and chemically. We have utilized a monoclonal antibody that recognizes lacto-N-neotetraose (LNnT) and the lectin, Maackia amurensis leukoagglutinin (MAL), which is specific for NeuNAc.alpha.2-3Gal.beta.1-4GlcNAc trisacchride sequence to characterize the 12 N. meningitidis LOSs. Using the combination of ELISA, SDS-PAGE, Western blotting, and other chemical analyses, we have shown that the LNnT (Gal.beta.1-4GlcNAc.beta.1-3Gal.beta.1-4Glc) sequence was present in the 4.0-kDa **LOS** components of seven immunotype LOSs seen on SDS-PAGE. Six of the seven LNnT-containing LOSs also bound the MAL lectin indicating that N-acetylneuraminic acid (NeuNAc) was .alpha.2,3-linked to the LNnT

sequence in the LOSs. Sialylation of the terminal Gal of LNnT-containing 4.0-kDa component caused only a slight increase in its apparent MW to 4100 on SDS-PAGE. The one **LOS** with the LNnT-containing component, but not MAL-binding, was from a Group A N. meningitidis, which does not synthesize CMP-NeuNAc, the substrate needed for **LOS** sialylation. Thus, it is concluded (1) a common LNnT sequence is present in seven immunotype LOSs in addition to their immunotype epitopes, and (2) NeuNAc is .alpha.2->3 linked to the terminal Gal of LNnT if a organism synthesizes CMP-NeuNAc such as Groups B and C organisms. The above conclusions are consistent with the published structures of N. meningitidis LOSs. The results also demonstrate that specific carbohydrate-binding lectins and monoclonal antibodies can be used as simple yet effective tools to characterize specific carbohydrate sequences in a bacterial **LOS** or LPS such as N. meningitidis **LOS** . It is intriguing that N. meningitidis LOSs mimic certain glycosphingolipids, such as paragloboside (LNnT-ceramide) and sialylparagloboside, and some glycoproteins of the host in having LNnT and N-acetyllactosamine sequences respectively with or without .alpha.2->3 linked NeuNAc. Epidemiological studies of N. meningitidis suggest that the molecular mimicry of host structures by its **LOS** plays a role in the pathogenesis of N. meningitidis by helping the organism to evade host immune defenses in man. The molecular mimicry of host structures by **LOS** or LPS is also found in other human pathogens such as N. gonorrhoeae, Haemophilus ducreyi, H. influenaze, Moraxella **catarrhalis**, Campylobacter jejuni, and Helicobacter pylori.

L6 ANSWER 3 OF 35 MEDLINE DUPLICATE 2
ACCESSION NUMBER: 2000428085 MEDLINE
DOCUMENT NUMBER: 20407342 PubMed ID: 10948153
TITLE: **Lipooligosaccharide** P(k) (Galalpha1-4Galbeta1-4Glc) epitope of moraxella **catarrhalis** is a factor in resistance to bactericidal activity mediated by normal human serum.
AUTHOR: Zaleski A; Scheffler N K; Densen P; Lee F K; Campagnari A A; Gibson B W; Apicella M A
CORPORATE SOURCE: Department of Microbiology, The University of Iowa, Iowa City, Iowa 52242, USA.
CONTRACT NUMBER: AI44642 (NIAID)
AI45728 (NIAID)
AI46469 (NIAID)
+
SOURCE: INFECTION AND IMMUNITY, (2000 Sep) 68 (9) 5261-8. Journal code: GO7; 0246127. ISSN: 0019-9567.
PUB. COUNTRY: United States
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English

FILE SEGMENT: Priority Journals
ENTRY MONTH: 200009
ENTRY DATE: Entered STN: 20000922
Last Updated on STN: 20000922
Entered Medline: 20000908

AB Moraxella **catarrhalis** is a respiratory pathogen responsible for acute bacterial otitis media in children and exacerbation of chronic bronchitis in adults. M. **catarrhalis** strains are frequently resistant to the bactericidal activity of normal human serum. In order to determine if the **lipooligosaccharide** (**LOS**) of M. **catarrhalis** has a role in serum resistance, the UDP-glucose-4-epimerase (galE) gene was identified, cloned, and sequenced and a deletion/insertion mutation was introduced into M. **catarrhalis** strain 2951. GalE enzymatic activity, measured in whole-cell lysates, was ablated in M. **catarrhalis** 2951 galE. Mass spectrometric analysis of **LOS** isolated with hot phenol-water confirmed that strain 2951 produced a type A **LOS**. These studies showed that the **LOS** from 2951 galE had lost two hexose residues due to the galE mutation and that the resultant **LOS** structure lacked the (Galalpha1-4Galbeta1-4Glc) P(k) epitope found on M. **catarrhalis** 2951. Wild-type M. **catarrhalis** 2951 is resistant to complement-mediated serum bactericidal activity. In contrast, a greater than 2-log(10)-unit reduction in CFU occurred after incubation of 2951 galE in either 50 or 25% pooled human serum (PNHS), and CFU in 10% PNHS decreased by about 1 log(10) unit. These studies suggest that the P(k) epitope of the **LOS** may be an important factor in the resistance of M. **catarrhalis** to the complement-mediated bactericidal effect of normal human serum.

L6 ANSWER 4 OF 35 MEDLINE DUPLICATE 3
ACCESSION NUMBER: 2000428046 MEDLINE
DOCUMENT NUMBER: 20407303 PubMed ID: 10948114
TITLE: Enhancement of clearance of bacteria from murine lungs by immunization with detoxified **lipooligosaccharide** from Moraxella **catarrhalis** conjugated to proteins.
AUTHOR: Hu W G; Chen J; Battey J F; Gu X X
CORPORATE SOURCE: Laboratory of Immunology, National Institute on Deafness and Other Communication Disorders, National Institutes of Health, Rockville, Maryland 20850, USA.
SOURCE: INFECTION AND IMMUNITY, (2000 Sep) 68 (9) 4980-5.
Journal code: GO7; 0246127. ISSN: 0019-9567.
PUB. COUNTRY: United States
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals

ENTRY MONTH: 200009
ENTRY DATE: Entered STN: 20000922
Last Updated on STN: 20000922
Entered Medline: 20000908

AB Moraxella **catarrhalis** strain 25238 detoxified **lipooligosaccharide** (dLOS)-protein conjugates induced a significant rise of bactericidal anti-**LOS** antibodies in animals. This study reports the effect of active or passive immunization with the conjugates or their antiserum on pulmonary clearance of M. **catarrhalis** in an aerosol challenge mouse model. Mice were injected subcutaneously with dLOS-tetanus toxoid (dLOS-TT), dLOS-high-molecular-weight proteins (dLOS-HMP) from nontypeable Haemophilus influenzae (NTHi), or nonconjugated materials in Ribi adjuvant and then challenged with M. **catarrhalis** strain 25238 or O35E or NTHi strain 12. Immunization with dLOS-TT or dLOS-HMP generated a significant rise of serum anti-**LOS** immunoglobulin G and 68% and 35 to 41% reductions of bacteria in lungs compared with the control ($P<0.01$) following challenge with homologous strain 25238 and heterologous strain O35E, respectively. Serum anti-**LOS** antibody levels correlated with its bactericidal titers against M. **catarrhalis** and bacterial CFU in lungs. Additionally, immunization with dLOS-HMP generated a 54% reduction of NTHi strain 12 compared with the control ($P<0.01$). Passive immunization with a rabbit antiserum against dLOS-TT conferred a significant reduction of strain 25238 CFU in lungs in a dose- and time-dependent pattern compared with preimmune serum-treated mice. Kinetic examination of lung tissue sections demonstrated that antiserum-treated mice initiated and offset inflammatory responses more rapidly than preimmune serum-treated mice. These data indicate that **LOS** antibodies (whether active or passive) play a major role in the enhancement of pulmonary clearance of different test strains of M. **catarrhalis** in mice. In addition, dLOS-HMP is a potential candidate for a bivalent vaccine against M. **catarrhalis** and NTHi infections.

L6 ANSWER 5 OF 35 SCISEARCH COPYRIGHT 2001 ISI (R)
ACCESSION NUMBER: 2000:155974 SCISEARCH
THE GENUINE ARTICLE: 285UW
TITLE: Serum resistance in Haemophilus ducreyi requires outer membrane protein DsrA
AUTHOR: Elkins C (Reprint); Morrow K J; Olsen B
CORPORATE SOURCE: UNIV N CAROLINA, SCH MED, DEPT MED, ROOM 521 BURNETT WOMACK, CAMPUS BOX 7030, CHAPEL HILL, NC 27599 (Reprint); UNIV N CAROLINA, SCH MED, DEPT MICROBIOL & IMMUNOL, CHAPEL HILL, NC 27599; TEXAS TECH UNIV, HLTH SCI CTR, DEPT BIOCHEM & CELL BIOL, LUBBOCK, TX 79430

COUNTRY OF AUTHOR: USA
SOURCE: INFECTION AND IMMUNITY, (MAR 2000) Vol. 68, No. 3, pp. 1608-1619.
Publisher: AMER SOC MICROBIOLOGY, 1325 MASSACHUSETTS AVENUE, NW, WASHINGTON, DC 20005-4171.
ISSN: 0019-9567.
DOCUMENT TYPE: Article; Journal
FILE SEGMENT: LIFE
LANGUAGE: English
REFERENCE COUNT: 56

ABSTRACT IS AVAILABLE IN THE ALL AND IALL FORMATS

AB Haemophilus ducreyi is resistant to killing by normal serum antibody and complement. We discovered an H. ducreyi outer membrane protein required for expression of serum resistance and termed it DsrA (for ''ducreyi serum resistance A''). The dsrA locus was cloned, sequenced, and mutagenized, An isogenic mutant (FX517) of parent strain 35000 was constructed and characterized, and it was found to no longer express dsrA. FX517 was at least 10-fold more serum susceptible than 35000. DsrA was expressed by all strains of H. ducreyi tested, except three naturally occurring, avirulent, serum-sensitive strains. FX517 and the three naturally occurring dsrA-nonexpressing strains were complemented in trans with a plasmid expressing dsrA. All four strains were converted to a serum-resistant phenotype, including two that contained truncated **lipooligosaccharide** (**LOS**). Therefore, serum resistance in H. ducreyi does not require expression of full-length **LOS** but does require expression of dsrA. The dsrA locus from eight additional H. ducreyi strains was sequenced, and the deduced amino acid sequences were more than 85% identical. The major difference between the DsrA proteins was due to the presence of one, two, or three copies of the heptameric amino acid repeat NTHNINK. These repeats account for the variability in apparent molecular mass of the monomeric form of DsrA (28 to 35 kDa) observed in sodium dodecyl sulfate-polyacrylamide gel electrophoresis. Since DsrA is present in virulent strains, is highly conserved, and is required for serum resistance, we speculate that it may be a virulence factor and a potential vaccine candidate.

L6 ANSWER 6 OF 35 MEDLINE DUPLICATE 4
ACCESSION NUMBER: 2000325744 MEDLINE
DOCUMENT NUMBER: 20325744 PubMed ID: 10865201
TITLE: Progress toward the development of a vaccine to prevent Moraxella (Branhamella) **catarrhalis** infections.
AUTHOR: McMichael J C
CORPORATE SOURCE: Wyeth-Lederle Vaccines, 211 Bailey Road, West Henrietta, NY 14586-9728, USA.
SOURCE: Microbes Infect, (2000 Apr) 2 (5) 561-8. Ref: 61

Journal code: DJ1; 100883508. ISSN: 1286-4579.
PUB. COUNTRY: France
Journal; Article; (JOURNAL ARTICLE)
General Review; (REVIEW)
(REVIEW, TUTORIAL)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 200008
ENTRY DATE: Entered STN: 20000811
Last Updated on STN: 20000811
Entered Medline: 20000802

AB Moraxella **catarrhalis** is a major cause of otitis media and respiratory disease. Vaccine development is at the antigen identification stage. This review examines the more promising antigens, including the 200K protein, the hemagglutinins, the lactoferrin-binding proteins, the UspA proteins, the CopB protein, the transferrin-binding proteins, the CD protein, the E protein and **lipooligosaccharide** conjugates. Clinical testing of some of these antigens should begin soon.

L6 ANSWER 7 OF 35 BIOSIS COPYRIGHT 2001 BIOSIS
ACCESSION NUMBER: 2000:386220 BIOSIS
DOCUMENT NUMBER: PREV200000386220
TITLE: Evaluation of detoxified **lipooligosaccharide** from Moraxella **catarrhalis** conjugated to proteins as a vaccine in an aerosol challenge mouse model.
AUTHOR(S): Hu, W. G. (1); Chen, J. (1); Gu, X. X. (1)
CORPORATE SOURCE: (1) National Institute on Deafness and Other Communication Disorders, National Institutes of Health, Rockville, MD USA
SOURCE: Abstracts of the General Meeting of the American Society for Microbiology, (2000) Vol. 100, pp. 300. print.
Meeting Info.: 100th General Meeting of the American Society for Microbiology Los Angeles, California, USA May 21-25, 2000 American Society for Microbiology . ISSN: 1060-2011.
DOCUMENT TYPE: Conference
LANGUAGE: English
SUMMARY LANGUAGE: English

L6 ANSWER 8 OF 35 MEDLINE DUPLICATE 5
ACCESSION NUMBER: 2001381129 MEDLINE
DOCUMENT NUMBER: 21108937 PubMed ID: 11163472
TITLE: Vaccines for Moraxella **catarrhalis**.
AUTHOR: McMichael J C
CORPORATE SOURCE: Wyeth-Lederle Vaccines, 211 Bailey Road, West

Henrietta, NY 14586-9728, USA.. mcmichj@war.wyeth.com
SOURCE: VACCINE, (2000 Dec 8) 19 Suppl 1 S101-7. Ref: 53
Journal code: X6O; 8406899. ISSN: 0264-410X.
PUB. COUNTRY: England: United Kingdom
Journal; Article; (JOURNAL ARTICLE)
General Review; (REVIEW)
(REVIEW, TUTORIAL)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 200107
ENTRY DATE: Entered STN: 20010709
Last Updated on STN: 20010709
Entered Medline: 20010705

AB Vaccine development for Moraxella **catarrhalis** is in the antigen identification stage. M. **catarrhalis** does not appear to synthesize secreted antigens such as exotoxins, nor does it appear to possess a carbohydrate capsule. Modified forms of these antigens are usually good vaccine components. There is some interest in whole bacterial cells and membrane fractions, but the search has largely focused on purified outer surface antigens. All of the present antigens have been selected based on the response seen in animals, although the antibody response seen in people exposed to the bacterium provides some guidance. The antibody response provides information related to the cross-strain preservation of epitopes and whether they are surface exposed. Antigens that elicit antibodies that have complement dependent bactericidal capacity, opsonophagocytic activity or interfere with one of the antigen's known functions such as adhesion or nutrient acquisition are particularly valued. In addition to examining the antibody response, some antigens have been evaluated in a murine pulmonary clearance model. Using these assays and model, several vaccine candidates have been identified. The antigens may be roughly classified by the function they serve the bacterium. One set appears to promote adhesion to host tissues and includes the hemagglutinins, ubiquitous surface protein A1 (UspA1), and possibly the CD protein. A second set is involved in nutrient acquisition. This set includes the lactoferrin binding protein A (LbpA) and lactoferrin binding protein B (LbpB), the transferrin binding protein A (TbpA) and transferrin binding protein B (TbpB), the CD and E porins, and the **Catarrhalis** outer membrane protein B (CopB). A third set is comprised of antigens involved in virulence and it includes **lipooligosaccharide** (**LOS**) and the ubiquitous surface protein A2 (UspA2). Antigens of unknown function, such as the 200K protein, may also be vaccine candidates. The antigens that are most suitable will be determined in clinical studies that are only beginning now.

L6 ANSWER 9 OF 35 WPIDS COPYRIGHT 2001 DERWENT INFORMATION LTD

ACCESSION NUMBER: 1999-444322 [37] WPIDS
DOC. NO. CPI: C1999-130893
TITLE: Detoxified **lipooligosaccharide**-based vaccine for prevention of Moraxella **catarrhalis** infections in mammals.
DERWENT CLASS: B04 D16
INVENTOR(S): GU, X; ROBBINS, J B
PATENT ASSIGNEE(S): (USSH) US DEPT HEALTH & HUMAN SERVICES
COUNTRY COUNT: 85
PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG
WO 9936086	A1	19990722	(199937)*	EN	60
RW: AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW NL OA PT SD SE SZ UG ZW					
W: AL AM AT AU AZ BA BB BG BR BY CA CH CN CU CZ DE DK EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT UA UG US UZ VN YU ZW					
AU 9922212	A	19990802	(199954)		
BR 9906902	A	20001017	(200056)		
EP 1047447	A1	20001102	(200056)	EN	
R: AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE					
CN 1288384	A	20010321	(200137)		

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
WO 9936086	A1	WO 1999-US590	19990112
AU 9922212	A	AU 1999-22212	19990112
BR 9906902	A	BR 1999-6902	19990112
		WO 1999-US590	19990112
EP 1047447	A1	EP 1999-902170	19990112
		WO 1999-US590	19990112
CN 1288384	A	CN 1999-802142	19990112

FILING DETAILS:

PATENT NO	KIND		PATENT NO
AU 9922212	A	Based on	WO 9936086
BR 9906902	A	Based on	WO 9936086
EP 1047447	A1	Based on	WO 9936086

PRIORITY APPLN. INFO: US 1998-71483 19980113
AN 1999-444322 [37] WPIDS

Searcher : Shears 308-4994

AB WO 9936086 A UPAB: 19990914
NOVELTY - A **lipooligosaccharide** (**LOS**) isolated from Moraxella **catarrhalis** and detoxified by removal of ester-linked fatty acids to produce detoxified **LOS** (dLOS) or treated to remove lipid A to produce oligosaccharide (OS) is new.
DETAILED DESCRIPTION - INDEPENDENT CLAIMS are also included for a conjugate vaccine for M. **catarrhalis** comprising dLOS or OS, and a covalently linked immunogenic carrier as above; methods of detoxifying LOS isolated from M. **catarrhalis**, by removal of ester-linked fatty acids; methods of making a conjugate vaccine as above.
ACTIVITY - Immunoprotective; Auditory; Antibacterial.
MECHANISM OF ACTION - Vaccine.
USE - The methods are useful for isolation of detoxified **lipooligosaccharide** or oligosaccharide from M. **catarrhalis**. The detoxified **lipooligosaccharide** or oligosaccharide are useful in conjugate vaccines. The vaccine is useful for protection against M. **catarrhalis** which causes otitis media and respiratory infections.
ADVANTAGE - The invention provides a detoxified **lipooligosaccharide** from M. **catarrhalis**, the major virulence factor for pathogenesis of bacterial infections. When tested by the standard Limulus amebocyte lysate assay, the isolated **LOS** showed 2 x 104 EU/ mu g, whereas the dLOS showed 1 EU/ mu g, representing a 20000-fold reduction of toxicity.
Dwg.0/3

L6 ANSWER 10 OF 35 WPIDS COPYRIGHT 2001 DERWENT INFORMATION LTD
ACCESSION NUMBER: 1999-070180 [06] WPIDS
DOC. NO. CPI: C1999-020714
TITLE: New laft mutants of gram-negative pathogenic bacteria - produce LOS having reduced toxicity, but retaining antigenicity, useful for immunisation against gram negative bacteria.
DERWENT CLASS: B04 D16
INVENTOR(S): APICELLA, M A; GIBSON, B W; NICHOLS, W A
PATENT ASSIGNEE(S): (APIC-I) APICELLA M A; (GIBS-I) GIBSON B W; (NICH-I) NICHOLS W A; (REGC) UNIV CALIFORNIA; (IOWA) UNIV IOWA RES FOUND
COUNTRY COUNT: 82
PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG
WO 9853851	A1	19981203	(199906)*	EN	17

RW: AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW NL OA PT SD SE SZ UG ZW
W: AL AM AT AU AZ BA BB BG BR BY CA CH CN CU CZ DE DK EE ES FI

GB GE GH GM GW HU ID IL IS JP KE KG KP KR KZ LC LK LR LS LT
LU LV MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK SL
TJ TM TR TT UA UG US UZ VN YU ZW
AU 9877010 A 19981230 (199918)

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
WO 9853851	A1	WO 1998-US10881	19980528
AU 9877010	A	AU 1998-77010	19980528

FILING DETAILS:

PATENT NO	KIND		PATENT NO
AU 9877010	A	Based on	WO 9853851

PRIORITY APPLN. INFO: US 1997-47791 19970528
AN 1999-070180 [06] WPIDS
AB WO 9853851 A UPAB: 19990316
A bacterium (I), particularly a Gram negative bacterium, that has its Lipid A fatty transferase (LAft) gene mutated to remove transferase activity (designated a laft mutant), is new. Also claimed are: (1) an endotoxin isolated from a laft mutant bacterium (2) a method of preparing mutant endotoxin, by isolating it from (I), where the mutated endotoxin has substantially reduced toxicity relative to that from the corresponding wild-type bacterium (3) a vaccine comprising: (a) a laft mutant bacterium, particularly where the bacterium is live and inactivated; (b) a physiological carrier suitable for mucosal administration.

USE - (I) is used to immunise an individual, particularly a human against a live gram negative bacterial pathogen (claimed). Gram negative pathogens including Neisseria meningitides, N. gonorrhoeae, Haemophilus species including H. influenzae and H. ducreyi, and Moraxella **catarrhalis** are particular targets for the vaccine, especially H. influenzae. Laft mutants can be engineered to express heterologous antigens of other microbial pathogens at the surface of the mutated bacteria for use as a multivalent vaccine. Isolated endotoxin from laft mutants, either alone, or conjugated to a carrier protein, may be used to generate **lipooligosaccharides** (**LOS**)-specific antibodies for passive immunisation and for diagnostic assays to detect gram-negative pathogens in clinical specimens (disclosed).

Dwg.0/1

L6 ANSWER 11 OF 35 MEDLINE DUPLICATE 6

ACCESSION NUMBER: 1998234010 MEDLINE
DOCUMENT NUMBER: 98234010 PubMed ID: 9573066
TITLE: Synthesis and characterization of **lipooligosaccharide**-based conjugates as vaccine candidates for Moraxella (Branhamella) **catarrhalis**.
AUTHOR: Gu X X; Chen J; Barenkamp S J; Robbins J B; Tsai C M; Lim D J; Battey J
CORPORATE SOURCE: Laboratory of Immunology, National Institute on Deafness and Other Communication Disorders, Rockville, Maryland 20850, USA..
xgu@pop.nidcd.nih.gov
SOURCE: INFECTION AND IMMUNITY, (1998 May) 66 (5) 1891-7.
Journal code: GO7; 0246127. ISSN: 0019-9567.
PUB. COUNTRY: United States
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 199805
ENTRY DATE: Entered STN: 19980520
Last Updated on STN: 19980520
Entered Medline: 19980514

AB Moraxella (Branhamella) **catarrhalis** is an important cause of otitis media and sinusitis in children and of lower respiratory tract infections in adults. **Lipooligosaccharide** (**LOS**) is a major surface antigen of the bacterium and elicits bactericidal antibodies. Treatment of the **LOS** from strain ATCC 25238 with anhydrous hydrazine reduced its toxicity 20,000-fold, as assayed in the Limulus amebocyte lysate (LAL) test. The detoxified **LOS** (dLOS) was coupled to tetanus toxoid (TT) or high-molecular-weight proteins (HMP) from nontypeable Haemophilus influenzae through a linker of adipic acid dihydrazide to form dLOS-TT or dLOS-HMP. The molar ratios of dLOS to TT and HMP conjugates were 19:1 and 31:1, respectively. The antigenicity of the two conjugates was similar to that of the **LOS**, as determined by double immunodiffusion. Subcutaneous or intramuscular injection of both conjugates elicited a 50- to 100-fold rise in the geometric mean of immunoglobulin G (IgG) to the homologous **LOS** in mice after three injections and a 350- to 700-fold rise of anti-**LOS** IgG in rabbits after two injections. The immunogenicity of the conjugate was enhanced by formulation with monophosphoryl lipid A plus trehalose dimycolate. In rabbits, conjugate-induced antisera had complement-mediated bactericidal activity against the homologous strain and heterologous strains of M. **catarrhalis**. These results indicate that a detoxified **LOS**-protein conjugate is a candidate for immunization against M. **catarrhalis** diseases.

L6 ANSWER 12 OF 35 SCISEARCH COPYRIGHT 2001 ISI (R)
ACCESSION NUMBER: 1998:428529 SCISEARCH
THE GENUINE ARTICLE: ZQ663
TITLE: Monoclonal antibodies to the epitope alpha-Gal-(1-4)-beta-Gal-(1- of Moraxella **catarrhalis** LPS react with a similar epitope in type IV pili of Neisseria meningitidis
AUTHOR: Rahman M (Reprint); Jonsson A B; Holme T
CORPORATE SOURCE: ICDDR, DIV SCI LAB, GPO BOX 128, DHAKA, BANGLADESH (Reprint); KAROLINSKA INST, MICROBIOL & TUMORBIOL CTR, S-17177 STOCKHOLM, SWEDEN
COUNTRY OF AUTHOR: BANGLADESH; SWEDEN
SOURCE: MICROBIAL PATHOGENESIS, (MAY 1998) Vol. 24, No. 5, pp. 299-308.
Publisher: ACADEMIC PRESS LTD, 24-28 OVAL RD, LONDON NW1 7DX, ENGLAND.
ISSN: 0882-4010.
DOCUMENT TYPE: Article; Journal
FILE SEGMENT: LIFE
LANGUAGE: English
REFERENCE COUNT: 28

ABSTRACT IS AVAILABLE IN THE ALL AND IALL FORMATS

AB Murine monoclonal antibodies (MAbs) against the A, B and C LPS serotypes of M. **catarrhalis** were generated and their binding specificity was examined in an enzyme-linked immunosorbent assay (ELISA). Two broadly cross-reactive monoclonal antibodies (MCA1 and MCC2) against the outer core region of LPS were further characterized. A panel of synthetic glycoproteins and glycolipids was used to determine the binding specificity of the MAbs. MCA1 and MCC2 bound specifically to alpha-Gal-(1-4)-beta-Gal of galabiose and globotriose glycoconjugates. The reactivity of the MAbs with galabiose was-higher than that with globotriose. The MAbs could recognize the alpha-Gal-(1-4)-beta-Gal epitope only when it was in a terminal position. MCA1 was further shown to react with a similar epitope in the glycosylated type IV pili of N. meningitidis, which has been shown to contain a 1-4 linked digalactose at the terminal part of the saccharide present in the pili. MCA1 could efficiently recognize this epitope indicating that it was exposed on the surface of the pili. (C) 1998 Academic Press Limited.

L6 ANSWER 13 OF 35 BIOSIS COPYRIGHT 2001 BIOSIS
ACCESSION NUMBER: 1998:416635 BIOSIS
DOCUMENT NUMBER: PREV199800416635
TITLE: Characterization of **lipooligosaccharide** -based conjugates as vaccine candidates for moraxella (Branhamella) **catarrhalis**.
AUTHOR(S): Chen, J.; Gu, X-X.
CORPORATE SOURCE: NIDCD/NIH, Rockville, MD USA

SOURCE: Abstracts of the General Meeting of the American Society for Microbiology, (1998) Vol. 98, pp. 236. Meeting Info.: 98th General Meeting of the American Society for Microbiology Atlanta, Georgia, USA May 17-21, 1998 American Society for Microbiology . ISSN: 1060-2011.
DOCUMENT TYPE: Conference
LANGUAGE: English

L6 ANSWER 14 OF 35 MEDLINE DUPLICATE 7
ACCESSION NUMBER: 1999094568 MEDLINE
DOCUMENT NUMBER: 99094568 PubMed ID: 9879959
TITLE: Outer-membrane antigen expression by Moraxella (Branhamella) **catarrhalis** influences pulmonary clearance.
AUTHOR: Kyd J M; Cripps A W; Murphy T F
CORPORATE SOURCE: Faculty of Applied Science, University of Canberra, Belconnen, Australian Capital Territory.
CONTRACT NUMBER: AI28304 (NIAID)
TW02158 (FIC)
SOURCE: JOURNAL OF MEDICAL MICROBIOLOGY, (1998 Feb) 47 (2) 159-68.
Journal code: J2N; 0224131. ISSN: 0022-2615.
PUB. COUNTRY: ENGLAND: United Kingdom
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 199901
ENTRY DATE: Entered STN: 19990128
Last Updated on STN: 19990128
Entered Medline: 19990111

AB Moraxella (Branhamella) **catarrhalis** is a common respiratory tract pathogen in man. The bacterium shows a strong tendency to form aggregates in vitro. A variant strain of M. **catarrhalis** that showed a reduced tendency to form aggregates was selected by successive in-vitro passage in broth culture from which aggregates had settled. The non-clumping variant strain showed alteration in expression of outer-membrane antigens, including the HMW-OMP, an outer-membrane protein of c. 200 kDa, outer-membrane protein CD and **lipo-oligosaccharide** . A mouse model for pulmonary challenge with M. **catarrhalis** revealed significant differences in the rate of clearance of the isogenic variant strains from the lung. The parent strain caused enhanced recruitment of neutrophils to the lung and more rapid clearance of bacteria from the lungs in comparison to the non-clumping variant. It is concluded that alteration of expression of surface molecules by M. **catarrhalis** has a significant impact in an in-vivo model of pulmonary clearance.

L6 ANSWER 15 OF 35 MEDLINE DUPLICATE 8
ACCESSION NUMBER: 97296466 MEDLINE
DOCUMENT NUMBER: 97296466 PubMed ID: 9152030
TITLE: Moraxella (Branhamella) **catarrhalis** --clinical and molecular aspects of a rediscovered pathogen.
AUTHOR: Enright M C; McKenzie H
CORPORATE SOURCE: Department of Biological Sciences, University of Sussex, Falmer, Brighton.
SOURCE: JOURNAL OF MEDICAL MICROBIOLOGY, (1997 May) 46 (5) 360-71. Ref: 129
Journal code: J2N; 0224131. ISSN: 0022-2615.
PUB. COUNTRY: ENGLAND: United Kingdom
Journal; Article; (JOURNAL ARTICLE)
General Review; (REVIEW)
(REVIEW, TUTORIAL)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 199705
ENTRY DATE: Entered STN: 19970609
Last Updated on STN: 19970609
Entered Medline: 19970529

AB Since its discovery at the end of the nineteenth century, Moraxella (Branhamella) **catarrhalis** has undergone several changes of nomenclature and periodic changes in its perceived status as either a commensal or a pathogen. Molecular analysis based on DNA hybridisation or 16S rDNA sequence comparisons has established its phylogenetic position as a member of the Moraxellaceae and shown that it is related more closely to Acinetobacter spp. than to the genus Neisseria in which it was placed formerly. However, confusion with phenotypically similar Neisseria spp. can occur in the routine diagnostic laboratory if appropriate identification tests are not performed. M. **catarrhalis** is now accepted as the third commonest pathogen of the respiratory tract after Streptococcus pneumoniae and Haemophilus influenzae. It is a significant cause of otitis media and sinusitis in children and of lower respiratory tract infections in adults, especially those with underlying chest disease. Nosocomial spread of infection, especially within respiratory wards, has been reported. Invasive infection is uncommon, but analysis of reports for England and Wales between 1992 and 1995 revealed 89 cases of M. **catarrhalis** bacteraemia, with the peak incidence in children aged 1-2 years. Carriage rates of M. **catarrhalis** are high in children and in the elderly, but its role as a commensal organism has probably been overstated in the past. Approximately 90% of strains are now beta-lactamase positive and, given that the first such strain was reported in 1976, this represents a dramatic increase in frequency over the last 20

years which has not been paralleled in any other species. The BRO-1 and BRO-2 beta-lactamase enzymes of M. **catarrhalis** are found in other Moraxellaceae, but are not related to beta-lactamases of any other species and their origin is therefore unknown. Molecular and typing studies have shown that the M. **catarrhalis** species is genetically heterogeneous and these methods have aided epidemiological investigation. Studies of factors that may be related to pathogenicity have shown the existence of three serotypes of **lipooligosaccharide** and the presence of fimbriae and a possible capsule. Some strains are serum-resistant, probably by virtue of interference with complement action, whilst transferrin- and lactoferrin-binding proteins enable the organism to obtain iron from its environment. An antibody response in humans to various M. **catarrhalis** antigens, including highly conserved outer-membrane proteins, has been demonstrated. Increased understanding of the organism's pathogenic properties and the host response to it may help to identify suitable vaccine targets or lead to other strategies to prevent infection. Whilst it remains, at present, the third most important respiratory pathogen, the impact of immunisation strategies for other organisms may change this position. The speed with which M. **catarrhalis** acquired beta-lactamase demonstrates the capacity of this organism to surprise us.

L6 ANSWER 16 OF 35 MEDLINE DUPLICATE 9
ACCESSION NUMBER: 97395751 MEDLINE
DOCUMENT NUMBER: 97395751 PubMed ID: 9251851
TITLE: Experimental otitis media induced by nonviable Moraxella **catarrhalis** in the guinea pig model.
AUTHOR: Sato K
CORPORATE SOURCE: Department of Otolaryngology, Niigata University School of Medicine, Japan.
SOURCE: AURIS, NASUS, LARYNX, (1997 Jul) 24 (3) 233-8. Journal code: 9FZ; 7708170. ISSN: 0385-8146.
PUB. COUNTRY: Netherlands
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 199710
ENTRY DATE: Entered STN: 19971224
Last Updated on STN: 19971224
Entered Medline: 19971027

AB Moraxella **catarrhalis** is a normal resident of the human nasopharyngeal flora, but it is also isolated from middle ear fluid of acute otitis media and otitis media with effusion patients. To determine whether M. **catarrhalis** has direct pathogenicity in the middle ear, heat-killed M. **catarrhalis** was

inoculated into the middle ear bullae of guinea pigs, and the inflammatory response was investigated. Middle ear mucosal histopathology observed in M. **catarrhalis**-inoculated ears included subepithelial edema, capillary dilatation, thickening of lamina propria mucosa, inflammatory cell and erythrocyte infiltration into the lamina propria mucosa. Inflammatory cell numbers, lysozyme and myeloperoxidase concentrations in the middle ear washing suspensions of M. **catarrhalis**-inoculated ears were significantly higher than control ears throughout the experiment. Therefore, nonviable M. **catarrhalis** induced middle ear inflammation and mucoperiosteal histopathology, which might be caused by direct injury of the nonviable bacteria (e.g. **lipooligosaccharide** or outer membrane proteins) and metabolic products of inflammatory cells.

L6 ANSWER 17 OF 35 SCISEARCH COPYRIGHT 2001 ISI (R)
ACCESSION NUMBER: 96:807878 SCISEARCH
THE GENUINE ARTICLE: VQ253
TITLE: SYNTHESIS OF OLIGOSACCHARIDE STRUCTURES FROM THE LIPOPOLYSACCHARIDE OF MORAXELLA-**CATARRHALIS**
AUTHOR: EKELOF K; OSCARSON S (Reprint)
CORPORATE SOURCE: UNIV STOCKHOLM, ARRHENIUS LAB, DEPT ORGAN CHEM, S-10691 STOCKHOLM, SWEDEN (Reprint); UNIV STOCKHOLM, ARRHENIUS LAB, DEPT ORGAN CHEM, S-10691 STOCKHOLM, SWEDEN
COUNTRY OF AUTHOR: SWEDEN
SOURCE: JOURNAL OF ORGANIC CHEMISTRY, (01 NOV 1996) Vol. 61, No. 22, pp. 7711-7718.
ISSN: 0022-3263.
DOCUMENT TYPE: Article; Journal
FILE SEGMENT: PHYS; LIFE
LANGUAGE: ENGLISH
REFERENCE COUNT: 19
ABSTRACT IS AVAILABLE IN THE ALL AND IALL FORMATS

AB The synthesis of the octasaccharide [p-(trifluoroacetamido)phenyl]ethyl 4-O-[2-O-(2-acetamido-2-deoxy-alpha-D-glucopyranosyl)-beta-D-glucopyranosyl]-6-O-[2-O-[4-O-(4-O-alpha-D-galactopyranosyl-beta-D-galactopyranosyl)-alpha-D-glucopyranosyl]-beta-D-glucopyranosyl]-3-O-beta-D-glucopyranosyl-alpha-D-glucopyranoside, representing the outer part of the **lipooligosaccharide** from Moraxella **catarrhalis** serotype A, is described, together with a hepta-, a hexa-, and a pentasaccaride, composing parts thereof with shorter oligosaccharide chains substituted in the g-position of the central 3,4,6-branched glucose moiety. The versatility of the use of thioglycosides in oligosaccharide synthesis is shown, since throughout the synthesis thioglycosides are used as glycosyl donor precursors, either directly in dimethyl(methylthio)sulfonium triflate (DMTST)-promoted

coupling reactions or after conversion to the corresponding glycosyl bromide in silver triflate-promoted couplings. The effects of different protecting groups, anomeric leaving groups, and solvents used in the various coupling reactions are often substantial, which necessitates the use of easily convertible intermediates.

L6 ANSWER 18 OF 35 SCISEARCH COPYRIGHT 2001 ISI (R)
ACCESSION NUMBER: 96:367035 SCISEARCH
THE GENUINE ARTICLE: UJ185
TITLE: ANTIBODY-RESPONSE IN RABBITS TO SEROTYPE-SPECIFIC DETERMINANTS IN LIPOPOLYSACCHARIDES FROM MORAXELLA-**CATARRHALIS**
AUTHOR: RAHMAN M (Reprint); HOLME T
CORPORATE SOURCE: KAROLINSKA INST, MICROBIOL & TUMORBIOL CTR, S-17177 STOCKHOLM, SWEDEN (Reprint)
COUNTRY OF AUTHOR: SWEDEN
SOURCE: JOURNAL OF MEDICAL MICROBIOLOGY, (MAY 1996) Vol. 44, No. 5, pp. 348-354.
ISSN: 0022-2615.
DOCUMENT TYPE: Article; Journal
FILE SEGMENT: LIFE
LANGUAGE: ENGLISH
REFERENCE COUNT: 25
ABSTRACT IS AVAILABLE IN THE ALL AND IALL FORMATS

AB Antibodies against the serotype determinant epitopes of Moraxella **catarrhalis** lipopolysaccharides (LPS) were demonstrated in sera from rabbits immunised with whole bacterial cells. Purified LPS preparations from eight strains of M. **catarrhalis** were used as antigens in enzyme-linked immunosorbent assays (ELISA) and immunoblotting. The serotype specificity of the antibodies was shown by neutralisation with LPS and with purified polysaccharide obtained from LPS prepared from strains belonging to different serotypes. In immunoblots, antisera against the A and B LPS serotypes reacted only with LPS of its own type, confirming the presence of type-specific antibodies. A weak band was observed with type A LPS and antibody to type C, indicating cross-reactivity between the A and C serotypes. This cross-reaction can be explained on the basis of the known chemical structure of the LPS of the different serotypes. After heterologous absorption of sera, bands were obtained with homologous LPS antigen. These results suggest that the predominant antibody response in rabbits to LPS from M. **catarrhalis** is serotype-specific, unlike that previously observed in infected human patients.

L6 ANSWER 19 OF 35 SCISEARCH COPYRIGHT 2001 ISI (R)
ACCESSION NUMBER: 96:831159 SCISEARCH
THE GENUINE ARTICLE: VR778
TITLE: MONOCLONAL-ANTIBODIES AGAINST HAEMOPHILUS-INFLUENZAE

LIPOPOLYSACCHARIDES - CLONE MAHI-4 BINDING TO A PENTASACCHARIDE CONTAINING TERMINAL BETA-GAL RESIDUES AND CLONE MAHI-10 RECOGNIZING TERMINAL PHOSPHORYLATED SACCHARIDE RESIDUES

AUTHOR: BORRELLI S; JANSSON P E (Reprint); LINDBERG A A
CORPORATE SOURCE: KAROLINSKA INST, HUDDINGE HOSP, NOVUM, CLIN RES CTR, S-14186 HUDDINGE, SWEDEN (Reprint); KAROLINSKA INST, HUDDINGE HOSP, NOVUM, CLIN RES CTR, S-14186 HUDDINGE, SWEDEN
COUNTRY OF AUTHOR: SWEDEN
SOURCE: MICROBIAL PATHOGENESIS, (NOV 1996) Vol. 21, No. 5, pp. 307-318.
ISSN: 0882-4010.
DOCUMENT TYPE: Article; Journal
FILE SEGMENT: LIFE
LANGUAGE: ENGLISH
REFERENCE COUNT: 25

ABSTRACT IS AVAILABLE IN THE ALL AND IALL FORMATS

AB Mouse monoclonal antibodies MAHI 4 and MAHI 10 reactive with Haemophilus influenzae lipopolysaccharide (LPS), were generated by fusing mouse myeloma cells with spleen cells of mice immunized with H. influenzae strain RM.7004-XP-1. The antibody MAHI 4 reacted in whole-cell enzyme immunoassay (EIA) and colony-dot-immunoblotting with 20 of 123 H. influenzae strains and to a few other human Haemophilus spp. and Neisseria spp., but not to any Bordetella pertussis, B. parapertussis, Aeromonas spp. or Moraxella **catarrhalis** strains tested. This suggests a specific epitope accessible to recognition in just a few strains. This conclusion was supported by the data on binding of MAHI 4 to only three of 18 H. influenzae LPSs tested, but not td any Haemophilus ducreyi or enterobacterial LPSs. The antibody MAHI 10 bound to 80 of 123 strains of H. influenzae and to a few strains of Neisseria spp. and M. **catarrhalis** as evaluated by EIA and colony-dot-immunoblotting, which suggests an epitope accessible to recognition in 65% of the H. influenzae strains tested. The antibody MAHI 10 reacted with 10 of 18 H. influenzae LPSs as determined by EIA. By using polysaccharides, obtained after both mild acidic hydrolysis, strong alkali treatment, and dephosphorylation, as inhibitors of the antibodies binding to N. influenzae LPS antigens it was shown that phosphate groups were essential for the binding of MAHI 10 to LPS but they did not affect antigenic recognition by MAHI 4. None of the monoclonal antibodies bound to isolated lipid A, but the aggregation caused by the fatty acids of lipid A was essential for optimum epitope recognition. Enzymatic treatment of homologous LPSs with galactose-oxidase led to products which were between 20 to 30 times less effective as inhibitors of the binding of the MAHI 4 than the native LPSs. Taken together the results indicate that MAHI 4 has the following pentasaccharide as the epitope Gal beta 1-->2Hep

alpha 1-->2Hep alpha 1-->3Hep alpha 1-->Kdo(P). These results emphasize the importance of the terminal beta-Gal residue in the definition of the MAHI 4 specificity, and of the terminal phosphorylated saccharide residues of some of the Haemophilus LPSs for the MAHI 10 specificity. (C) 1996 Academic Press Limited

L6 ANSWER 20 OF 35 MEDLINE DUPLICATE 10
ACCESSION NUMBER: 96261755 MEDLINE
DOCUMENT NUMBER: 96261755 PubMed ID: 8801433
TITLE: Branhamella **catarrhalis**: epidemiology, surface antigenic structure, and immune response.
AUTHOR: Murphy T F
CORPORATE SOURCE: Department of Medicine, State University of New York at Buffalo, USA.. cammurph@ubvms.cc.buffalo.edu
CONTRACT NUMBER: AI 28304 (NIAID)
SOURCE: MICROBIOLOGICAL REVIEWS, (1996 Jun) 60 (2) 267-79.
Ref: 186
Journal code: M9M; 7806086. ISSN: 0146-0749.
PUB. COUNTRY: United States
Journal; Article; (JOURNAL ARTICLE)
General Review; (REVIEW)
(REVIEW, ACADEMIC)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 199609
ENTRY DATE: Entered STN: 19961015
Last Updated on STN: 19961015
Entered Medline: 19960930

AB Over the past decade, Branhamella **catarrhalis** has emerged as an important human pathogen. The bacterium is a common cause of otitis media in children and of lower respiratory tract infections in adults with chronic obstructive pulmonary disease. B. **catarrhalis** is exclusively a human pathogen. It colonizes the respiratory tract of a small proportion of adults and a larger proportion of children. Studies involving restriction enzyme analysis of genomic DNA show that colonization is a dynamic process, with the human host eliminating and acquiring new strains frequently. The surface of B. **catarrhalis** contains outer membrane proteins, **lipooligosaccharide**, and pili. The genes which encode several outer membrane proteins have been cloned, and some of these proteins are being studied as potential vaccine antigens. Analysis of the immune response has been limited by the lack of an adequate animal model of B. **catarrhalis** infection. New information regarding outer membrane structure should guide studies of the human immune response to B. **catarrhalis** . Immunoassays which specifically detect antibodies to determinants exposed on the bacterial surface will elucidate the most relevant immune response. The recognition of B. **catarrhalis** as an

important human pathogen has stimulated research on the epidemiology and surface structures of the bacterium. Future studies to understand the mechanisms of infection and to elucidate the human immune response to infection hold promise of developing new methods to treat and prevent infections caused by B. **catarrhalis**.

L6 ANSWER 21 OF 35 SCISEARCH COPYRIGHT 2001 ISI (R)
ACCESSION NUMBER: 96:423141 SCISEARCH
THE GENUINE ARTICLE: UP080
TITLE: BRANHAMELLA-**CATARRHALIS** - EPIDEMIOLOGY, SURFACE ANTIGENIC STRUCTURE, AND IMMUNE-RESPONSE
AUTHOR: MURPHY T F (Reprint)
CORPORATE SOURCE: VET ADM MED CTR, MED RES 151, 3495 BAILEY AVE, BUFFALO, NY, 14215 (Reprint); STATE UNIVERSITY NEW YORK BUFFALO, DIV INFECT DIS, DEPT MED, BUFFALO, NY, 00000; STATE UNIVERSITY NEW YORK BUFFALO, DIV INFECT DIS, DEPT MICROBIOL, BUFFALO, NY, 00000
COUNTRY OF AUTHOR: USA
SOURCE: MICROBIOLOGICAL REVIEWS, (JUN 1996) Vol. 60, No. 2, pp. 267.
ISSN: 0146-0749.
DOCUMENT TYPE: General Review; Journal
FILE SEGMENT: LIFE
LANGUAGE: ENGLISH
REFERENCE COUNT: 187

ABSTRACT IS AVAILABLE IN THE ALL AND IALL FORMATS

AB Over the past decade, Branhamella **catarrhalis** has emerged as an important human pathogen. The bacterium is a common cause of otitis media in children and of lower respiratory tract infections in adults with chronic obstructive pulmonary disease. B. **catarrhalis** is exclusively a human pathogen. It colonizes the respiratory tract of a small proportion of adults and a larger proportion of children. Studies involving restriction enzyme analysis of genomic DNA show that colonization is a dynamic process, with the human host eliminating and acquiring new strains frequently. The surface of B. **catarrhalis** contains outer membrane proteins, **lipooligosaccharide**, and pili. The genes which encode several outer membrane proteins have been cloned, and some of these proteins are being studied as potential vaccine antigens. Analysis of the immune response has been limited by the lack of an adequate animal model of B. **catarrhalis** infection. New information regarding outer membrane structure should guide studies of the human immune response to B. **catarrhalis** . Immunoassays which specifically detect antibodies to determinants exposed on the bacterial surface will elucidate the most relevant immune response. The recognition of B. **catarrhalis** as an important human pathogen has stimulated research on the epidemiology and surface structures of the bacterium. Future studies to

under-stand the mechanisms of infection and to elucidate the human immune response to infection hold promise of developing new methods to treat and prevent infections caused by B. **catarrhalis**.

L6 ANSWER 22 OF 35 MEDLINE DUPLICATE 11
ACCESSION NUMBER: 96381129 MEDLINE
DOCUMENT NUMBER: 96381129 PubMed ID: 8789142
TITLE: Separation and characterization of O-deacylated **lipooligosaccharides** and glycans derived from Moraxella **catarrhalis** using capillary electrophoresis-electrospray mass spectrometry and tandem mass spectrometry.
AUTHOR: Kelly J; Masoud H; Perry M B; Richards J C; Thibault P
CORPORATE SOURCE: Department of Chemistry, Dalhousie University, Halifax, Nova Scotia, Canada.
SOURCE: ANALYTICAL BIOCHEMISTRY, (1996 Jan 1) 233 (1) 15-30. Journal code: 4NK; 0370535. ISSN: 0003-2697.
PUB. COUNTRY: United States
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 199610
ENTRY DATE: Entered STN: 19961106
Last Updated on STN: 19961106
Entered Medline: 19961021

AB Electrophoretic methods have been developed for the analysis of complex carbohydrates derived from **lipooligosaccharides** (**LOS**) of Moraxella **catarrhalis** using capillary electrophoresis coupled to electrospray mass spectrometry (CE-ESMS). Separation of **lipooligosaccharides** (**LOS**) arising from mild hydrazinolysis of the intact lipopolysaccharides (LPS) was achieved using aqueous ammonium formate, and enabled identification of sites of heterogeneity (phosphates, phosphoethanolamine, and pendant acyl groups) on either the lipid A or the core oligosaccharide. More complex mixtures of carbohydrates obtained from the complete deacylation and dephosphorylation of **LOS** were amendable to electrophoretic conditions using both anionic and cationic separation. In particular, electrophoretic conditions were developed which permitted resolution of closely related oligosaccharides according to the number of carbohydrate residues appended to the core structure. Structural characterization of carbohydrates and **LOS** released from the hydrazinolysis and acid hydrolysis treatment of the intact LPS was achieved using tandem mass spectrometry (MS-MS) for samples introduced by direct flow injection. Taken together, the combination of CE-ESI-MS and MS-MS analyses provided valuable information on the heterogeneity of the **LOS** population in which a significant level of

variability was found mostly in the lipid A portion.

L6 ANSWER 23 OF 35 SCISEARCH COPYRIGHT 2001 ISI (R)
ACCESSION NUMBER: 95:580127 SCISEARCH
THE GENUINE ARTICLE: RQ792
TITLE: THE TETRASACCHARIDE L-ALPHA-D-HEPTOSE1-]2-L-ALPHA-D-HEPTOSEL-]3-L-ALPHA-D-HEPTOSE1-](3-DEOXY-D-MANNO-OCTULOSONIC ACID) AND PHOSPHATE IN LIPID-A DEFINE THE CONSERVED EPITOPE IN HAEMOPHILUS LIPOPOLYSACCHARIDES RECOGNIZED BY A MONOCLONAL-ANTIBODY
AUTHOR: BORRELLI S; HEGEDUS O; SHAW D H; JANSSON P E (Reprint); LINDBERG A A
CORPORATE SOURCE: HUDDINGE UNIV HOSP, KAROLINSKA INST, NOVUM, CLIN RES CTR, S-14186 HUDDINGE, SWEDEN (Reprint); HUDDINGE UNIV HOSP, KAROLINSKA INST, NOVUM, CLIN RES CTR, S-14186 HUDDINGE, SWEDEN; KAROLINSKA INST, DEPT IMMUNOL MICROBIOL PATHOL & INFECT DIS, DIV CLIN BACTERIOL, S-14186 HUDDINGE, SWEDEN; FISHERIES & OCEANS CANADA, SCI BRANCH, ST JOHNS, NF A1C 5X1, CANADA
COUNTRY OF AUTHOR: SWEDEN; CANADA
SOURCE: INFECTION AND IMMUNITY, (SEP 1995) Vol. 63, No. 9, pp. 3683-3692.
ISSN: 0019-9567.
DOCUMENT TYPE: Article; Journal
FILE SEGMENT: LIFE
LANGUAGE: ENGLISH
REFERENCE COUNT: 56

ABSTRACT IS AVAILABLE IN THE ALL AND IALL FORMATS

AB A murine monoclonal antibody, MAHI 3 (immunoglobulin G2b), that is broadly reactive with Haemophilus influenzae lipopolysaccharides (LPSs) but nonreactive with all enterobacterial LPSs tested was generated by fusing mouse myeloma cells with spleen cells of BALB/c mice immunized with azide-killed H. influenzae RM.7004. MAHI 3 bound to ail H. influenzae, all other human Haemophilus spp., all Bordetella pertussis and Bordetella parapertussis, and all Aeromonas spp. tested but not to any Neisseria or Moraxella **catarrhalis** strains, as determined by enzyme immunoassay, colony dot immunoblotting, and immunoblotting. In an inhibition enzyme immunoassay, MAHI 3 reacted with all 45 H. influenzae LPSs tested but not with the LPS from the rough mutant 169 Rd(-)/b(+), which has only 3-deoxy-D-manno-octulosonic acid (P) [Kdo(P)] and lipid A. The antibody was not inhibited by H. influenzae lipid A or lipid-free polysaccharide isolated after mild acid hydrolysis. Only native LPSs show positive inhibitory activity, indicating that]part of lipid A is involved in the binding of MAHI 3. From the results, it is indicated that the structural element recognized by MAHI 3 is

Hep alpha 1-->2Hep alpha 1-->3Hep alpha 1-->Kdo together with part of lipid A, including the phosphate.

L6 ANSWER 24 OF 35 MEDLINE DUPLICATE 12
ACCESSION NUMBER: 95211773 MEDLINE
DOCUMENT NUMBER: 95211773 PubMed ID: 7535189
TITLE: Structural studies of the O-antigen oligosaccharides from two strains of Moraxella **catarrhalis** serotype C.
AUTHOR: Edebrink P; Jansson P E; Rahman M M; Widmalm G; Holme T; Rahman M
CORPORATE SOURCE: Department of Organic Chemistry, Arrhenius Laboratory, Stockholm University, Sweden.
SOURCE: CARBOHYDRATE RESEARCH, (1995 Jan 17) 266 (2) 237-61. Journal code: CNY; 0043535. ISSN: 0008-6215.
PUB. COUNTRY: Netherlands
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 199505
ENTRY DATE: Entered STN: 19950510
Last Updated on STN: 19960129
Entered Medline: 19950504

AB The oligosaccharide parts from Moraxella (Branhamella) **catarrhalis** serotype C **lipooligosaccharides** were isolated by mild acid hydrolysis followed by gel permeation chromatography. Four different oligosaccharides could be identified from strain RS26 and two from strain RS10. The structures of the O-oligosaccharides were established by methylation analyses, mass spectrometry, and NMR spectroscopy. It is concluded that the oligosaccharide O-antigens from RS26 are a mixture of octa-, deca-, and undeca-saccharides, and most likely a heptasaccharide. Strain RS10 contains the deca- and the undeca-saccharide only. The structures for the oligosaccharides are shown below. [formula: see text] OS(7) [formula: see text] OS(8) [formula: see text] OS(10) [formula: see text] OS(11) Methylation analysis of the intact **lipooligosaccharides** showed that two Kdo residues were present, one terminal and one 4,5-substituted residue. It also showed that they consisted of a lipid A portion with 6-substituted glucosamine residues.

L6 ANSWER 25 OF 35 SCISEARCH COPYRIGHT 2001 ISI (R)
ACCESSION NUMBER: 95:778471 SCISEARCH
THE GENUINE ARTICLE: TD377
TITLE: BINDING-SPECIFICITY FOR 4 MONOCLONAL-ANTIBODIES RECOGNIZING TERMINAL GAL-ALPHA-1-]4GAL RESIDUES IN HAEMOPHILUS-INFLUENZAE LIPOPOLYSACCHARIDE
AUTHOR: BORRELLI S; ALTMANN K; JANSSON P E (Reprint);

LINDBERG A A
CORPORATE SOURCE: HUDDINGE HOSP, NOVUM, KAROLINSKA INST, CLIN RES CTR, S-14186 HUDDINGE, SWEDEN (Reprint); HUDDINGE HOSP, NOVUM, KAROLINSKA INST, CLIN RES CTR, S-14186 HUDDINGE, SWEDEN; HUDDINGE HOSP, NOVUM, KAROLINSKA INST, DEPT IMMUNOL MICROBIOL PATHOL & INFECT DIS, S-14186 HUDDINGE, SWEDEN
COUNTRY OF AUTHOR: SWEDEN
SOURCE: MICROBIAL PATHOGENESIS, (SEP 1995) Vol. 19, No. 3, pp. 139-157.
ISSN: 0882-4010.
DOCUMENT TYPE: Article; Journal
FILE SEGMENT: LIFE
LANGUAGE: ENGLISH
REFERENCE COUNT: 46

ABSTRACT IS AVAILABLE IN THE ALL AND IALL FORMATS

AB Four murine monoclonal antibodies (MAbs) reactive with the outer-core region of the lipopolysaccharide (LPS) from Haemophilus influenzae were generated after immunization with azide-killed H. influenzae RM.7004 AH1-2 and their epitope specificities studied. The monoclonal antibodies: MAHI 6 (IgM), MAHI 5 (IgG2a), MAHI 8 (IgG3), and MAHI 11(IgG2b) bound to synthetic glycoconjugates or glycolipids with terminal galabiosyl (Gal alpha 1 --> 4Gal beta 1-) or globotriaosyl (Gal alpha 1 --> 4Gal beta 1 1 --> 4GLc) residues as evaluated in enzyme immunoassays (EIA). Glycoconjugates or glycolipids with internally placed galabiose elements were not active, indicating selectively of the MAbs for recognition of the epitope. Nine LPSs from H. influenzae inhibited the binding of the four MAbs. The presence of the galabiosyl disaccharide element in these nine LPSs was evidenced by the binding of I-125-labeled Shiga toxin isolated from the bacterium Shigella dysenteriae type 1, reported to have as receptor the Gal alpha 1 --> 4Gal beta disaccharide (Lindberg et al., J Biol Chem, 1987, 262: 1779-85). Structural studies of these H. influenzae LPSs were also in accord with the presence of the galabiosyl disaccharide, in addition H-1-NMR spectroscopy showed the presence of O-acetyl groups in the RM.7004 AH1-2 LPS. However, differential binding specificities of the MAbs to modified RM.7004 AH1-2 LPSs were observed. MAHI 6 and MAHI 11 bound equally well to LPS, polysaccharides obtained after mild acidic treatment, and dephosphorylated LPS samples as shown in inhibition EIA. In contrast, both dephosphorylated LPS samples and polysaccharides were poorer inhibitors of the binding of MAHI 5 and MAHI 8 to native RM.7004 AH1-2 LPS. Neither the de-O-acylated nor the de-O,N-acylated LPSs were effective inhibitors of any of the four MAbs. These results suggest that the MAbs recognition involves Gal alpha 1 --> 4Gal and O-acetyl and other saccharide residue(s) from the oligosaccharide moiety of the LPS. The epitopes are also expressed and accessible to recognition in clinical isolates coming

from different sources of Neisseria spp., Haemophilus spp., and Moraxella **catarrhalis**, but not in Bordetella spp., Aeromonas spp. or Enterobacteriaceae as evaluated by whole-bacteria EIA and colony-dot-immunoblotting. (C) 1995 Academic Press Limited

L6 ANSWER 26 OF 35 EMBASE COPYRIGHT 2001 ELSEVIER SCI. B.V.
ACCESSION NUMBER: 94196523 EMBASE
DOCUMENT NUMBER: 1994196523
TITLE: Isolation and characterization of lipopolysaccharides, **lipooligosaccharides**, and lipid A.
AUTHOR: Apicella M.A.; Griffiss J.M.; Schneider H.
CORPORATE SOURCE: Department of Microbiology, Iowa University College of Medicine,Iowa City, IA 52242, United States
SOURCE: Methods in Enzymology, (1994) 235/- (242-252).
ISSN: 0076-6879 CODEN: MENZAU
COUNTRY: United States
DOCUMENT TYPE: Journal; Article
FILE SEGMENT: 004 Microbiology
LANGUAGE: English

L6 ANSWER 27 OF 35 MEDLINE DUPLICATE 13
ACCESSION NUMBER: 93329207 MEDLINE
DOCUMENT NUMBER: 93329207 PubMed ID: 8335988
TITLE: Effect of immunization of pulmonary clearance of Moraxella **catarrhalis** in an animal model.
AUTHOR: MacIver I; Unhanand M; McCracken G H Jr; Hansen E J
CORPORATE SOURCE: Dept. of Microbiology, University of Texas Southwestern Medical Center, Dallas 75235-9048.
SOURCE: JOURNAL OF INFECTIOUS DISEASES, (1993 Aug) 168 (2) 469-72.
Journal code: IH3; 0413675. ISSN: 0022-1899.
PUB. COUNTRY: United States
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Abridged Index Medicus Journals; Priority Journals
ENTRY MONTH: 199308
ENTRY DATE: Entered STN: 19930903
Last Updated on STN: 19970203
Entered Medline: 19930824

AB A murine model for pulmonary clearance of Moraxella **catarrhalis** was used to determine whether immunization could enhance clearance of this organism from the lungs. Animals actively immunized with outer membrane vesicles of M. **catarrhalis** cleared an endobronchial challenge with the homologous strain more quickly than did sham-immunized control animals. Western blot analysis of both this immune mouse serum and rabbit antiserum raised against outer membrane vesicles of M. **catarrhalis**

indicated that antibodies were present to both outer membrane protein and **lipooligosaccharide** antigens. Passive immunization of mice with the immune rabbit serum resulted in enhanced pulmonary clearance of both homologous and heterologous strains of M. **catarrhalis**, indicating the involvement of serum antibody in this clearance process and the existence of conserved surface antigens in the two different M. **catarrhalis** strains. These results suggest that this model system may be useful for the identification of vaccine candidates among the surface antigens of M. **catarrhalis**.

L6 ANSWER 28 OF 35 BIOSIS COPYRIGHT 2001 BIOSIS
ACCESSION NUMBER: 1993:410138 BIOSIS
DOCUMENT NUMBER: PREV199396075863
TITLE: Recombinant interferon-gamma enhances resistance to acute disseminated Candida albicans infection in mice.
AUTHOR(S): Kullberg, Bart-Jan; Van't Wout, Jan W.; Hoogstraten, Connie; Van Furth, Ralph (1)
CORPORATE SOURCE: (1) Dep. Infectious Diseases, Building 1 C5P, P.O. Box 9600, 2300 RC Leiden Netherlands Antilles
SOURCE: Journal of Infectious Diseases, (1993) Vol. 168, No. 2, pp. 436-443.
ISSN: 0022-1899.
DOCUMENT TYPE: Article
LANGUAGE: English
AB The effect of recombinant rat interferon-gamma (rIFN-gamma) on acute disseminated Candida albicans infection in mice was investigated. Outgrowth of C. albicans in kidneys, spleen, and liver of mice treated with one intravenous (iv) dose of rIFN-gamma before iv injection of 5 times 10-5 cfu of C. albicans was significantly lower than in controls over 7 days. rIFN-gamma was protective when given 1 day before, simultaneously with, or 1-3 days after infection but not when given 3 days before. In mice pretreated with hydrocortisone acetate, rIFN-gamma significantly reduced the outgrowth only when 10-3 cfu of C. albicans was injected. Injection of rIFN-gamma did not reduce the outgrowth of C. albicans in cyclophosphamide-pretreated mice and significantly increased the capacity of peripheral blood and exudate peritoneal granulocytes to kill C. albicans in vitro. Thus, rIFN-gamma enhances host resistance against acute disseminated C. albicans infection in mice through activation of polymorphonuclear leukocytes.

L6 ANSWER 29 OF 35 MEDLINE DUPLICATE 14
ACCESSION NUMBER: 92307942 MEDLINE
DOCUMENT.NUMBER: 92307942 PubMed ID: 1612771
TITLE: Further antigenic similarities of Neisseria gonorrhoeae **lipooligosaccharides** and human

glycosphingolipids.
AUTHOR: Mandrell R E
CORPORATE SOURCE: Centre for Immunochemistry, Veterans Administration Medical Center, San Francisco, California 94121.
CONTRACT NUMBER: AI21620 (NIAID)
AI24616 (NIAID)
SOURCE: INFECTION AND IMMUNITY, (1992 Jul) 60 (7) 3017-20.
Journal code: GO7; 0246127. ISSN: 0019-9567.
PUB. COUNTRY: United States
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 199207
ENTRY DATE: Entered STN: 19920807
Last Updated on STN: 19920807
Entered Medline: 19920724

AB Anticarbohydrate monoclonal antibodies were tested for their ability to bind to various strains of Neisseria. A monoclonal antibody that binds to the ganglio-series glycosphingolipid, ganglio-N-triaosylceramide, also bound to strains of Neisseria gonorrhoeae but not to other species of Neisseria. An antibody specific for the globo-series glycosphingolipid, globotriaosylceramide, also bound to strains of N. gonorrhoeae, Neisseria meningitidis, Neisseria lactamica, and Branhamella **catarrhalis** but not to any other strains of nonpathogenic Neisseria.

L6 ANSWER 30 OF 35 MEDLINE DUPLICATE 15
ACCESSION NUMBER: 93056822 MEDLINE
DOCUMENT NUMBER: 93056822 PubMed ID: 1431352
TITLE: Biochemical analysis of lipopolysaccharides from respiratory pathogenic Branhamella **catarrhalis** strains and the role of anti-LPS antibodies in Branhamella respiratory infections.
AUTHOR: Tanaka H; Oishi K; Sonoda F; Iwagaki A; Nagatake T; Matsumoto K
CORPORATE SOURCE: Department of Internal Medicine, Nagasaki University.
SOURCE: KANSENSHOGAKU ZASSHI. JOURNAL OF THE JAPANESE ASSOCIATION FOR INFECTIOUS DISEASES, (1992 Jun) 66 (6) 709-15.
Journal code: IJR; 0236671. ISSN: 0387-5911.
PUB. COUNTRY: Japan
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: Japanese
FILE SEGMENT: Priority Journals
ENTRY MONTH: 199212
ENTRY DATE: Entered STN: 19930122
Last Updated on STN: 19930122
Entered Medline: 19921204

AB We characterized lipopolysaccharides (LPSs) from respiratory pathogenic Branhamella **catarrhalis** (BC) strains, and evaluated the protective property of anti-BC LPS antibody in BC respiratory infections. LPSs from four strains of BC were **lipooligosaccharide** having no O-side chain and a M(r) of 3 KDa, as estimated by sodium dodecyl sulfate-polyacrylamide gel electrophoresis (SDS-PAGE). All of them produced different patterns, showing two to four bands on SDS-PAGE. We found high level of anti-BC IgG antibody in convalescent sera from a patient with BC respiratory tract infection by ELISA. This IgG antibody recognized BC LPSs on Western blots. Two respiratory pathogens of BC (strains; 87-122, 88-23) were tested in a bactericidal assay employing a convalescent sera. 87-122 strain was susceptible to antibody-dependent, complement-mediated killing, while 88-23 strain was resistant. The killing of 87-122 strain was inhibited by addition of the homologous BC LPS to the convalescent sera in a dose-dependent manner. These data support that anti-BC LPS antibody may mediate complement-lysis of some strains of BC, and play a protective role in BC respiratory infections.

L6 ANSWER 31 OF 35 BIOSIS COPYRIGHT 2001 BIOSIS
ACCESSION NUMBER: 1992:380719 BIOSIS
DOCUMENT NUMBER: BR43:47669
TITLE: IDENTIFICATION AND PURIFICATION OF THE **LIPOOLIGOSACCHARIDE**-ASSOCIATED HIGH MOLECULAR WEIGHT OUTER MEMBRANE PROTEIN HMW-OMP OF BRANHAMELLA-**CATARRHALIS**.
AUTHOR(S): KLINGMAN K L; MURPHY T F
CORPORATE SOURCE: STATE UNIV. N.Y. BUFFALO, BUFFALO, N.Y.
SOURCE: 92ND GENERAL MEETING OF THE AMERICAN SOCIETY FOR MICROBIOLOGY, NEW ORLEANS, LOUISIANA, USA, MAY 26-30, 1992. ABSTR GEN MEET AM SOC MICROBIOL, (1992) 92 (0), 90.
CODEN: AGMME8.
DOCUMENT TYPE: Conference
FILE SEGMENT: BR; OLD
LANGUAGE: English

L6 ANSWER 32 OF 35 BIOSIS COPYRIGHT 2001 BIOSIS
ACCESSION NUMBER: 1992:380656 BIOSIS
DOCUMENT NUMBER: BR43:47606
TITLE: IMMUNE ENHANCEMENT OF PULMONARY CLEARANCE OF MORAXELLA-**CATARRHALIS**.
AUTHOR(S): MACIVER I; UNHANAND M; HELMINEN M; MCCRACKEN G H JR; HANSEN E J
CORPORATE SOURCE: UNIV. TEXAS SOUTHWESTERN MED. CENTER, DALLAS, TEX.
SOURCE: 92ND GENERAL MEETING OF THE AMERICAN SOCIETY FOR MICROBIOLOGY, NEW ORLEANS, LOUISIANA, USA, MAY 26-30,

1992. ABSTR GEN MEET AM SOC MICROBIOL, (1992) 92 (0), 80.
CODEN: AGMME8.
DOCUMENT TYPE: Conference
FILE SEGMENT: BR; OLD
LANGUAGE: English

L6 ANSWER 33 OF 35 MEDLINE DUPLICATE 16
ACCESSION NUMBER: 91014645 MEDLINE
DOCUMENT NUMBER: 91014645 PubMed ID: 1699109
TITLE: **Lipooligosaccharide** epitopes shared among gram-negative non-enteric mucosal pathogens.
AUTHOR: Campagnari A A; Spinola S M; Lesse A J; Kwaik Y A; Mandrell R E; Apicella M A
CORPORATE SOURCE: Department of Medicine, State University of New York, Buffalo 14215.
CONTRACT NUMBER: AI 18384 (NIAID)
AI 21620 (NIAID)
AI 24616 (NIAID)
+
SOURCE: MICROBIAL PATHOGENESIS, (1990 May) 8 (5) 353-62.
Journal code: MIC; 8606191. ISSN: 0882-4010.
PUB. COUNTRY: ENGLAND: United Kingdom
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 199010
ENTRY DATE: Entered STN: 19910117
Last Updated on STN: 19960129
Entered Medline: 19901027

AB The non-enteric Gram-negative human pathogens, B. **catarrhalis**, H. ducreyi, H. influenzae, N. gonorrhoeae and N. meningitidis, do not have repeating O-antigens as part of their principle surface glycolipid, the **lipooligosaccharide** (**LOS**). Because they have similar **LOS** structures, we studied the conservation of **LOS** oligosaccharide epitopes among these organisms. Twenty-one monoclonal antibodies (mAbs) generated by immunizing mice with H. influenzae, N. gonorrhoeae and N. meningitidis were studied for cross reactivity. Five mAbs generated against non-typable H. influenzae were the only strain-specific antibodies. Ten mAbs reacted to **LOS** epitope(s) common to a genera or species, and six mAbs bound to epitope(s) on the **LOS** of strains from different genera. Some cross reactive mAbs bound to **LOS** bands of similar molecular weights, while others bound to bands of varying molecular weights. mAb 3F11, whose epitope mimics a human blood-group antigen, bound to a 4.8 kDa **LOS** band in N. gonorrhoeae and H. ducreyi, two pathogens that infect genital epithelium. mAb 3D9,

whose epitope consists of 2-keto-3-deoxyoctulosonic acid (KDO), reacted with different **LOS** bands in N. gonorrhoeae, H. influenzae and some R mutants of S. minnesota. A 14 kb restriction fragment containing **lipooligosaccharide** synthesis genes responsible for the assembly of the 3D9 epitope in H. influenzae hybridized to all H. influenzae strains tested but did not hybridize to gonococcal and S. minnesota strains that expressed this epitope. These studies demonstrate that conserved **LOS** epitope(s) exist among different species and genera of non-enteric human pathogens and that different genetic mechanisms may have evolved in these pathogens to assemble some of these conserved epitopes.

L6 ANSWER 34 OF 35 BIOSIS COPYRIGHT 2001 BIOSIS
ACCESSION NUMBER: 1989:314362 BIOSIS
DOCUMENT NUMBER: BA88:28092
TITLE: ISOLATION OF THE OUTER MEMBRANE OF BRANHAMELLA-**CATARRHALIS**.
AUTHOR(S): MURPHY T F; LOEB M R
CORPORATE SOURCE: DIV. INFECTIOUS DIS., ERIE COUNTY MED. CENT, 462 GRIDER ST., BUFFALO, N.Y. 14215.
SOURCE: MICROB PATHOG, (1989) 6 (3), 159-174.
CODEN: MIPAEV. ISSN: 0882-4010.
FILE SEGMENT: BA; OLD
LANGUAGE: English

AB The emergence of Branhamella **catarrhalis** as an important human pathogen has stimulated interest in investigation of the outer membrane (OM) of the bacterium. In this study, the OM of B. **catarrhalis** was isolated and partially characterized. Radiolabelelled cells were lysed and fractionated by isopycnic centrifugation in a continuous sucrose gradient. Five fractions were identified. Fraction A consisted of OM fragments of varying density. Fractions B and C were OM of a discrete density containing some cytoplasmic membrane. Fraction D was cytoplasmic membrane and Fraction E contained smaller less dense fragments of cytoplasmic membrane. The protein composition of the Branhamella OM is typical for that of Gram-negative bacteria in that approximately 10 to 20 proteins were present with six to eight of these proteins predominating. Having isolated and partially characterized the OM by sucrose density centrifugation, five simpler techniques for isolating OM were employed and the preparations compared to OM isolated on the gradient. Techniques that are based on differential detergent solubility of OM and cytoplasmic membranes were ineffective in isolating OM of B. catarhalis. By contrast techniques that involved collection of OM vesicles were successful in isolating OM of B. **catarrhalis**. collection of vesicles from broth culture supernatants and EDTA-heat-induced vesicles were identified as convenient and reliable methods for isolating OM. Isolating and partially characterizing the OM of B. **catarrhalis**

represents an initial step in a systematic study of outer membrane antigens of the bacterium.

L6 ANSWER 35 OF 35 BIOSIS COPYRIGHT 2001 BIOSIS
ACCESSION NUMBER: 1989:198079 BIOSIS
DOCUMENT NUMBER: BR36:98528
TITLE: THE SURFACE OF BRANHAMELLA-**CATARRHALIS** A SYSTEMATIC APPROACH TO THE SURFACE ANTIGENS OF AN EMERGING PATHOGEN.
AUTHOR(S): MURPHY T F
CORPORATE SOURCE: DIV. INFECTIOUS DISEASES, ERIE COUNTY MED. CENT., 462 GRIDER ST., BUFFALO, N.Y. 14215.
SOURCE: WORKSHOP ON VACCINES FOR OTITIS MEDIA, PITTSBURGH, PENNSYLVANIA, USA, SEPTEMBER 1-2, 1988. PEDIATR INFECT DIS, (1988) 8 (1 SUPPL), S75-S77. CODEN: PIDJEV.
FILE SEGMENT: BR; OLD
LANGUAGE: English

FILE 'HOME' ENTERED AT 11:53:41 ON 25 JUL 2001